



दक्षिणमध्यरेलवे/SOUTH CENTRAL RAILWAY
नांदेडमंडल/Nanded Division

मंडलकार्यालय, कार्मिकशाखा, नांदेड/Divisional Office, Personnel Branch, Nanded - 431605

No.SCR/P.NED/210(a)/L2/JE(TRD)/25% LDCE

Date: 17.10.2025

All Concerned

Sub:- Formation of panel for promotion to the post of Junior Engineer/TRD in Pay Matrix Level- 6 (GP Rs. 4200) against 25% LDCE Quota in TRD Wing of Electrical Department on NED Division.

Ref:- PCPO/SC's Lr.No.SCR/P-HQ/226/SEL/2025, dt.07.10.2025.

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1. With reference to the letter cited, it is proposed to hold a selection through CBT for formation of panel to the post of Junior Engineer/TRD in Pay Matrix Level-6 (Grade Pay Rs. 4200/-) against 25% LDCE Quota in TRD Wing of Electrical Department on Nanded Division.

The communal break-up of vacancies assessed is as detailed below :-

SC	ST	UR	Total	PwBD			
				VI	HI	LD	OD
01	00	03	04	00	01 (D & HH)	00	00

2. Eligibility and service conditions of staff :-

2.1. All serving Technicians-III/Level-2 and above working in TRD Wing in Electrical Department of NED Division with minimum three years of regular service in skilled grades i.e. Technician Gr.III/TRD (including training period in terms of PCPO/SC's SC No.56/1981) and above in TRD Wing of Electrical Department on NED Division as on date of notification i.e. on 17.10.2025 and possessing the following qualification shall apply:

i) ITI/Act Apprenticeship pass in the trade relevant to the post of JE/TRD in terms of Railway Board's letter No. E(NG)/99/PM7/17, dated 25.08.2003 (S.C. No. 172/2003) or 10+2 in Science stream.

ii) Degree or Diploma in relevant Branch of Engineering required for the post of JE/TRD in terms of Railway Board's letter No. E(NG)/99/PM7/17, dated 28.07.2003 (S.C. No. 157/2003) are eligible to submit applications to the post of JE/TRD.

2.2 The volunteering staff should be below the age of 47 years in the case of General/OBC employees and 52 years in the case of SC/ST employees (SC No. 90/2020 & 92/2011).

2.3 In terms of Railway Board's No. E(NG)/2005/PM1/52, dated 22.08.2006 (SC No. 131/2006) the volunteering staff should fulfill the service conditions of age and educational qualifications and other service conditions as on the date of Notification i.e. on 17.10.2025.

Note: In respect of employees who have reported/joined on this Division on IRRT/IDRT on bottom seniority the service rendered in the technician category of old unit will also be counted for the purpose of qualifying service for promotion in the new seniority unit provided:

i) He/she is otherwise eligible to be considered for the selection to Group 'C' post as per extant rules; and The category in which he/she was working in the old unit is an eligible category for the selection/post in the new unit also. [SC Nos. 41/2006 & 117/2006] i.e. the service so allowed does not exceed the length of their immediate senior in the present unit.

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17.10.25

3. Mode of Selection

3.1 The professional ability of the employees in the field of selection will be adjudged through examination on CBT Mode and perusal of records.

3.2 The post of JE/TRD being a safety one, there will be no relaxation in qualifying marks, for candidates belonging to SC/ST community.

3.3 The final panel will be drawn in the order of merit based on aggregate marks of 'Professional ability' and 'Record of Service' (there is no provision of "outstanding"). However, the employees must secure a minimum of 60% marks in 'Professional ability', which will be conducted on CBT and 60% marks in aggregate, for being placed on the panel. The final panel will also be subject to their being fit in medical classification of A-3.

(Railway Board's Lr.No.E(NG)/I/2000/PM1/41, dated 20.08.2003, S.C. No. 144/2003)

4. Syllabus: The Syllabus and Question Bank prescribed for selection to the post of Junior Engineer/TRD against 25% LDCE quota are enclosed herewith. The same should be downloaded from the official website of www.scr.indianrailways.gov.in > About us > Division > Nanded Division > Personnel Branch > Notification/Syllabus/Question Bank. It is further advised that there will not be any mandatory limit of questions from the question bank. Question bank is only indicative in nature but not exhaustive. The candidates are advised to update their knowledge keeping in accordance with the change of technology and job requirement with latest rules/circulars/policies. It is the responsibility of the employees to download the syllabus and question bank. The controlling officer/supervisory officials concerned have to ensure that the syllabus and question bank should be circulated to all the eligible employees and postponement of selection due to non-circulation of syllabus and question banks will be viewed seriously.

5. Procedure for written examination.

5.1 In terms of Railway board's letter No. E(NG)/I/2018/PM1/4, dated 14.12.2018 (RBE No. 196/2018), PCPO/SC's S.C. No. 212/2018, the written examination consists of 100% objective and all the questions will be multiple choice only. There will be 110 questions including official language policy. Employees are required to answer any 100 questions. If the candidate answers more than 100 questions, the first attempted 100 questions will be evaluated.

5.2 There shall be negative marking of incorrect answers. 1/3rd of marks allotted for each question will be deducted for wrong answer (RBE No. 194/2019-SC NO. 159/19).

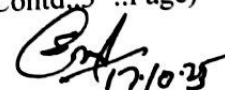
5.3 Cutting, over writing erasing or alteration of any type in the answer will not be accepted.

6. Date of Examination: The date, Venue and time of examination will be intimated separately. The examination will be tentatively conducted during 4th week of December-2025. However, it is to be advised to the staff volunteering staff that there will be no supplementary examination to the absentees.

7. Pre-selection/Pre-promotion training to eligible SC/ST employees: DEE/TRD/NED shall arrange for pre-selection training to the all 'SC' eligible employees in the eligibility list which will be published and pre promotion training shall be completed on or before 19.12.2025 as per the schedule given by PCPO/SC's vide letter No.SCR/P HQ/226/SEL/2025 dated 07.10.2025 and which shall cover entire syllabus.

The SC volunteered employees will only be imparted with the pre-selection training. In case any "SC" employee(s) is unwilling to undergo pre-selection training, a written unwillingness shall be obtained and sent to this office for record. After completion of pre-selection training, a certificate is to be issued by controlling officer that all eligible SC employees have been imparted pre-selection training for a period of 3-4 weeks.

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The candidates may keep an update time to time from this Railway's official website of www.ser.indianrailways.gov.in > About us > Division > Nanded Division > Personnel Branch > Notifications/Syllabus/Question Bank.

8. Mandatory Training :

The empanelled employee is required to undergo training including theoretical training in terms of Railway Board's RBE No.87/2022. The empanelled employee will be tested periodically during the prescribed training period. If he/she does not make satisfactory progress or do not show any improvement, he/she will be declared unsuitable for promotion. His/Her promotion will be subject to his successful completion of the training.

9. Notifying to the staff :

In terms of PCPO/SC's SC No.213/72, the Controlling Officer/Supervisor shall give wide publicity of the notification to all the eligible staff under their control, and notification should be displayed at conspicuous place. It is the responsibility of Controlling Officer/Supervisor to circulate the notification among the staff concerned. All columns in the Application should be filled completely.

10. Last date for submission of applications:

The willing and eligible volunteers have to submit their applications in prescribed proforma to their controlling officers on or before 10.11.2025 who will forward the applications in one bunch to DPO/Co-ord/NED on or before 14.11.2025.

11. Schedule of Selection :

- | | |
|--|--------------|
| a) Date of issue of Notification | : 17.10.2025 |
| b) Last date of submission of application to Supervisor | : 07.11.2025 |
| c) Last date of submission of application to Controlling Officer | : 10.11.2025 |
| d) Last date of submission of application to DPO/Co.Ord/O/NED | : 14.11.2025 |

Encl : Application Proforma (Annexure-I) &
Syllabus & Question Bank


(M. Suresh)

Assistant Personnel Officer/Engg
for Divisional Personnel Officer/Co.Ord/NED

C/- PCPO/SC & PCEE/SC- for kind information please

C/- DEE/TRD/NED, ADEE/TRD/NED for information and necessary action.

C/- Ch.OS/Confidential/NED

C/- DS/SCRE Sangh, SCRM union, AISCT REAssn./NED


for Divisional Personnel Officer/Co.Ord/NED

Applications for the post of JE/TRD in Pay Matrix Level-6 in 7th CPC against 25% LDCE Quota in TRD Wing of Electrical Department on NED Division. (Ref:- DPO/Co.Ord/NED's Lr.No. No.SCR/P.NED/210(a)/L2/JE(TRD)/25% LDCE, dt.17.10.2025)

- Affix recent
photograph
attested by
controlling
supervisor

Signature of the Employee
Name:
Designation:

Date:

Signature of the Controlling Supervisor
Name of the Supervisor
Designation

Signature of the Controlling Officer
Name:
Designation and stamp

17.10.5

SYLLABUS FOR JE TEST IN TRACTION DISTRIBUTION ORGANISATION (Revised in September-2025).

I. OHE:

- (i) Different systems of OHE.
- (ii) Brief history of Electric Traction on Indian Railways.
- (iii) General supply and feeding arrangements – Sectioning arrangements, basic principles of sectioning.
- (iv) Determination of copper section -Sag- tension in conductors - Temperature effects – Span lengths. Wind pressure – Blow off stagger – factors affecting the stagger.
- (v) OHE in curved tracks versine – super elevation- limitations.
- (vi) Schedule of dimensions – Basic principles of checking the OHE lay out plans – Survey pre-sagging plans.
- (vii) Types of overlaps – Jumpers – Droppers etc.
- (viii) Cantilever assembly – ABCD dimensions and other pertaining calculations.
- (ix) Regulations OHE – Advantages – Anti creep – limitations for tension lines – mechanical advantage – Y, Z measurements pulley block type and winch type ATDs.
- (x) Type of wiring in turn outs – crossings – crossovers. Section insulators erection assembly details – adjustments.
- (xi) Types of OHE termination and anchoring – types of neutral section and their usage.
- (xii) Different types of supports - Masts portals – Head spans Multiple structures – Loading of masts – Bonding movements.
- (xii) Electrical clearances – Horizontal, vertical in on polluted areas for long time duration and short time duration. Examples – Over dimensional consignments, precautions pertaining to movements of ODCs.
- (xiv) Attention towards breakdowns – accidents, relief train particulars, Tower Car particulars, wiring train composition movements of tower car, motor trolley, caution orders etc.
- (xv) Types of power blocks, emergency, local shadow, pre-arranged longitudinal protection, cross protection dead section entry of locomotives.
- (xvi) Bonding – earthing of structures – study of bonding and earthing code.
- (xvii) Employment schedules – Foundation charts – Pegging plans layout plans, SEDs – Tensioning charts – Erection of OHE marking foundations – Erection – SPSs selection – Cantilever section - wiring adjustments – pre-commissioning test – commissioning.
- (xviii) OHE material –IS sections – conductors – Tin bronze fittings – aluminum bronze fittings – insulators – stores collection and inspection and indenting and DS-8 – testing.
- (xix) Maintenance of log sheets – control charts – blocks – issue of PTW – cancellation – duties of TPC – localizing the faults – emergency manning of posts –coordination with other departments.

- (xx) OHE maintenance - necessity of maintenance – schedule as per ACTM – accidents – breakdowns – thefts – restoration – registers to be maintained – pollution and special checks – joint investigation with other departments – contact wire and current collection tests – Analysis of failures. Special maintenance instructions, TI & MI. Latest circulars & guidelines from RB and RDSO.
- (xxi) Safe working rules – G&SR relating to tower car movement and motor trolley movements – station working rules – safety rules – IE rules – IE act – Induction effects.
- (xxii) Various types of tower cars – their operation, maintenance and common failures.
- (xxiii) Special maintenance instructions, TI and MI and latest modifications/amendments.
- (xxiv) Power Line Crossings – Rules and regulations.
- (xxv) The mobile/web applications used in TrD such as TDMS, UDM, ICMS etc.
- (xxvi) 2x25 Kv system.

II. Power Supply Installation (PSI)

1. Layout of a grid Sub-Station – Spacing between two Sub-Stations – Traction Transformers details, various types of control posts – equipment details, circuit breakers – Interrupters and their working.
2. Earthing of Sub-Stations - Rules and regulations to follow.
3. Protective arrangements for feeders – for transformers against lightening, various types of relays like Electro Magnetic, Static and Numerical Type with their merits and demerits – details of testing.
4. Current transformers – potential transformers – LT auxiliary transformers – Transformer oil – properties and collection of oil samples – filtration – switch.
5. Maximum demand – contract demands – load factors – diversity factors – tariff etc.
6. Special maintenance instructions, TI and MI.
7. Electrical fires.

III. REMOTE CONTROL EQUIPMENTS

1. Different makes of remote control equipments in use on Indian Railways – Transmission of Telecommands – different components of SRC equipment – Function of repeaters – Allocation of channel frequency – Grouping of switching stations – FMVFT requirement- Mimic panel – Reception of Telecommands at controlled posts – Display of indications of Mimic panel – power block – sophisticated measuring instruments used in RC maintenance, schedules of RC equipments – Technique of soldering.
2. Special maintenance instructions, TI and MI.
3. Working of SCADA, specifications, testing equipments like OLIVER'G', Thermo vision camera, CB Analyzer, LA's, leakage current monitoring, TAN Delta Test Kit and other standards etc.

IV. Official language policy & Leave rules, Pass rules, HOER & DAR rules and Store matters.

OBJECTIVE –QUESTIONS ON TRD

1. Expand TRD -----
2. Maximum distance between two Discharge Rods -----
3. Discharge Rods should generally be placed at a maximum permissible distance from the work spot. (True/False)
4. Is it compulsory to test the line dead by a slight touch of discharge rod at Resister tube prior to placement of discharge rod on OHE wires? (Yes/NO)
5. Expand – PTW- -----.
6. 1 Meter = -----mm.
7. Broad Gauge of Railway is -----mm.
8. The minimum permissible OHE voltage at SP is -----KV.
9. Cable size of OHE Discharge rod is -----sq.mm.
10. The safe working distance for 25KV AC OHE is -----.
11. The DJ open caution board comes after the Neutral Section.(True /False).
12. Height of Height Gauge is -----.
13. Height Gauge is used at -----.
14. The caution board that should be displayed on Height gauge is ----
 - a) No caution board shall be displayed.
 - b) Danger Board.
 - c) Power block Working Limit
 - d) Caution Electrified Section.
15. Name the Caution Board for different Elementary Sections?
16. Traffic hauled by Diesel Power may be permitted into the section under Power Block.(True/False).
17. TI/MI is issued by RDSO. (True/False)
18. Discharge Rods is a safety item.(True/False)
19. Fire Extinguisher suitable for an electrical fire/ fire in live electrical equipment?
20. IR value for an OHE elementary section?
21. Track Protection should be done as per G&SR rule No.-----.
22. Expand – ACTM- -----.
23. 1 Tone = -----Kg.
24. Codel Life of a Detonator -----.
25. Which Tool is used to tackle heavy loads & tensile force-
 - a) Discharge Rod.
 - b) Max-Puller
 - c) Grease Gun
 - d) Power Hack Saw.
26. The Tool named Pull-Lift is used for?
 - a) To earth OHE.
 - b) POH of ATD
 - c) To hold weight of contact wire.
 - d) Non of the above.
27. The tool used to make a perfect gripe on OHE wires is-
 - a) Come along Clamp
 - b) Max-Puller
 - c) Pull-Lift
 - d) Rope pulley block
28. In case of 25KVAC system electrical clearance is greater than working clearance. (True/False)
29. The Competency Certificate No. for a OHE Lines man is -----.
30. What is Super Elevation?
 - a) Length of Super Mast.
 - b) Mast more than 9.5mt length.
 - c) The uplift of outer rails on curved tracks.
 - d) Height difference in contact wire at turn-outs.

31. The Caution Board that must be displayed on FOB/ROBs –
 - a) Caution 25000 volts.
 - b) DJ opens board
 - c) Lower Panto
 - d) Danger Men working.
32. Caution Board applicable at Dead-End OHE termination is –
 - a) Caution OHE ahead is alive.
 - b) Restricted Clearance.
 - c) Electric Engine Stop
 - d) Unwired Turn-Out.
33. The section between a TSS and SP is called as -----.
34. The section between a TSS and SSP is called as -----.
35. The section between a SSP and SP is called as -----.
36. As per ACTM the section that's supply is controlled by a CB is called as-----.
37. As per ACTM the section that's supply is controlled by a BM is called as-----.
38. The elementary section supply is controlled by a-
 - a) CB
 - b) BM
 - c) Hand operated off load switch.
 - d) BX
39. What is shown in mutually contrast colour in a OHE sectioning diagram?
 - a) Sector
 - b) Sub-Sector
 - c) Elementary Section
 - d) Non of the above.
40. According to ACTM ; fire is classified into ----- categories.
41. Inflammable liquids like Transformer oil is categorized as group ----- fire.
42. Which schedule maintenance has a periodicity of four years.?
 - a) AOH
 - b) IOH
 - c) POH
 - d) Non of the above.
43. Which schedule maintenance has a periodicity of twelve months?
 - a) AOH
 - b) IOH
 - c) POH
 - d) Non of the above
44. Schedule maintenance Foot Patrolling of a section is done by a Lines Man at an interval of 10 to 15 days.(True/False)
45. The re-tensioning of un-regulated OHE is done at an interval of ----- years.
46. Periodicity of Special Check of OHE is –
 - a) 15 days
 - b) 45 days
 - c) 5 years
 - d) No defined periodicity, it depends upon usage and chance of failure of the Equipment.
47. Oliver –G is used for –
 - a) Thickness of OHE
 - b) Sag in OHE
 - c) Height and Stagger of OHE.
 - d) Non of the above.
48. Oliver –G is used for current collection Test.(True /False)
49. Oliver –G can be used in Day time only and not in the night.(True/False)
50. Why it is better to use Oliver-G for Current Collection Test.-
 - a) It can be used in day & night.
 - b) No work man is required.
 - c) Indicates exact spark location
 - e) It is modern and so, is better.
51. Distance between track center and mast face is known as -----.
52. Implantation (min.) of opposite gantry mast is -----.
53. Clear span of N type portal is -----.
54. Clear span of O type portal is -----.
55. Clear span of R type portal is -----.
56. State the size of BFB 6x6 in mm -----.
57. Normally the length of drop arm is -----.
58. The boom of TTC mast is available in -----mts. Lengths
59. Implantation of obligatory mast is -----mts.
60. Maximum standard span is ----- mts.

61. Minimum implantation at Platform is ----- mts.
62. Clear span of TTC mast?
63. Leaning mast is painted with _____ colour strap as identification mark.
64. Mast supporting OHE of different elementary sections should be painted with ----- colour strap as identification mark.
65. Implantation is also known as setting distance. (True/False)
66. A mast inclined instead of being normal to the ground level is called as ----- mast.
67. What is used to declare a mast as leaning mast?
 - a) Measuring tape/Plumb bob
 - b) Plumb bob/Binocular
 - c) Binocular/Measuring tape
 - d) Sprit level.
68. Mast leaning more than ----- cm is not permissible.
69. The term Reverse Deflection is associated with -----.
70. Reverse Deflection applicable is ---- to ----- cm.
71. Minimum implantation is ----- mts
72. Normal implantation as per new standards is ----- mts.
73. Minimum span length is ----- mts.
74. The difference of two consecutive span lengths should not be more than----- mts.
75. Tolerance applicable in mast implantation is ----- mm.
76. Spans that are multiples of ----- mts. Are known as standard spans.
77. Spans that are not multiple of ----- mts. Are known as Non standard span.
78. 54 mts span length is a non-standard span. (True/False)
79. N type portal is suitable for OHE of maximum ----- No. tracks.
80. O type portal is suitable for OHE of maximum ----- No. tracks.
81. R type portal is suitable for OHE of maximum ----- No. tracks.
82. P type portal may be used in place of –
 - a) N portal
 - b) O portal
 - c) R portal
 - d) BFB portal.
83. G type portal may be used in place of –
 - a) N portal
 - b) O portal
 - c) R portal
 - d) BFB portal.
84. Size of up-right for N type portal is –
 - a) 450x450
 - b) 550x550
 - c) 600x600
 - d) 400x400
85. Size of up-right for O type portal is –
 - a) 450x450
 - b) 550x550
 - c) 600x600
 - d) 400x400
86. Size of up-right for R type portal is –
 - a) 450x450
 - b) 550x550
 - c) 600x600
 - d) 400x400
87. Size of up-right for P type portal is –
 - a) 450x450
 - b) 550x550
 - c) 600x600
 - d) 300x300
88. Size of up-right for G type portal is –
 - a) 450x450
 - b) 550x550
 - c) 600x600
 - d) 250x400
89. Standard BFB mast size -----.
90. RSJ mast size-----.
91. What are the different sizes of B series mast ?(any three)
92. What is the size of B-150 mast?
93. Normally OHE masts are ----- mts. Long.
94. -----mm portion of OHE mast must be embedded in foundation block.
95. In case of fabricated mast channel width should be parallel to track.(True/False)
96. Welded surface of fabricated mast shall remain perpendicular to track. (True/False)

97. In case of BFB/RSJ mast either of the surfaces can be set parallel or perpendicular to the track.(True/False)
98. PSC mast means mast made up of Concrete. (True/False)
99. Minimum permissible implantation on Outside curve is ----- mts.
100. Minimum permissible implantation on Inside curve is ----- mts.
101. A mast towards the center of the curve with respect to curved track is called as inside curve mast. (True/False)
102. A mast away from the center of the curve with respect to curve track is called as outside curve mast.(True/False)
103. Selection of span length on curvatures depends upon stagger.(True/False)
104. The term Curve Allowance is related with-
a) Mast Length b) Encumbrance c) Stagger d) Implantation.
105. The Curve Allowance is to be subtracted from the standard values of implantation on tangent track. (True/False)
106. The value of implantation on curved tracks varies according to the sharpness of the curve. (True/False)
107. What is the maximum span length for Tramway type regulated OHE?
108. What is the maximum span length for Tramway type un- regulated OHE?
109. 8.5mts long masts should be used for tram-way type OHE. (True/False)
110. Cap to Cap surface distance of ST, BT & 9 Ton insulators is called as ----- distance.
111. What shall be the difference in insulators being used in ordinary and polluted zones?
a) No difference b) load bearing capacity c) design d) Creepage distance.
112. Insulators with high creepage distance are used in heavily polluted zones.(True/False)
113. Long Creepage distance is –
a) 2000mm b) 1000mm c) 1050mm d) 760mm
114. Name the material used for making of OHE insulators ?
115. If ----- sheds of Insulator is found broken, it should be immediately replaced.
116. Is any test done on 9 ton insulator before its usage? (Yes/No)
117. Name the test that is done on ST, BT & 9Ton insulators prior to their use.
a) Load test b) IR test c) PI test d) No test
118. What specialty is required to the insulators to be used in polluted zone?
119. Sheds of the Hybrid Insulator is made-up of.-----.
120. 9Ton insulator is tested on ----- kg load.
121. Testing load of ST and BT insulators is -----kg.
122. Identify that is not a type of insulator from the given below.
a) Bracket insulator b) Stay Insulator c) 9 Ton insulator
d) Pedestal Insulator e) Tie Rod insulator f) PTFE g) Non of these.
123. Identify the activity that is done during AOH-
a) Clean the insulator b) identify the defective and replace it
c) Note the make and batch of insulator d) all of the above.
124. What probable defects you would suspect to a given insulator?
1) Dirty surface 2) broken sheds 3) Crack
4) Prohibited make & batch 5) Flash 6) loose GI cap.
a) 1,3,5 b) 2,4,6 c) 1,2,3,5,6 d) all of these.
125. For ----- rubber gloves are necessary.

126. What would be the No. of Elementary Section that is controlled by SS/216 –
a) It may be any thing b) 21600 c) X-216 d) SS-216
127. Clearance between fix and moving contacts when the Isolator is open?
128. Isolator is OFF load switch. (True/False)
129. Keys of all isolators of a Station are kept in Key Box under custody of the Station Master. (True/False)
130. The number of Main line Isolators prefix the code -----.
131. The number of Yard line Isolators prefix the code -----.
132. For Isolator operation Competency Certificate is necessary. (True/False)
133. What do you mean by term OFF Load Switch in reference to Isolator?
a) Isolator in yard. b) Maintenance of the Isolator can be done.
c) No current through the isolator d) Operation can be done with least effort.
134. What is the purpose of Isolator Arcing Horns?
a) As Bird scar to prevent the contacts from dirt. b) High Voltage Protection.
c) To protect main contacts from sparking while isolator operation.
d) To lock the main contacts while isolator is in closed condition.
135. In reference to Isolator what the term Pole generally means?
a) No. of Phase b) No. of pedestal insulator
c) Clearance between fix and moving contacts. d) Non of the above.
136. Generally Isolators of ----- Amp capacity for OHE and ----- Amp capacity for switching stations are used.
137. In course of maintenance of Isolator switch its fix and moving contacts should be shorted by a flexible jumper. (True/False)
138. What do you mean by earthing heel isolators?
a) Isolator mast is connected with an earth electrode.
b) Isolator Handel is shorted with mast by a flexible jumper.
c) the isolator has two moving contacts.
d) The Isolator isolates as well as earth the isolated OHE.
139. An Isolator mast shall only be connected to earth electrode if duplicate bonding to the mast is not provided. (True/false)
140. SS rope is treated with ----- oil.
141. ----- mts SS rope is suitable for Winch type ATD.
142. ----- mts SS rope is suitable for 3 pulley ATD.
143. What would be the suitable length of SS rope in Winch type ATD used for Tram-Way OHE?
144. What would be the suitable length of SS rope in 3 pulley ATD used for Tram-Way OHE?
145. How much counter wait shall be required for Winch type ATD used in Tram-way OHE?
146. How much counter wait shall be required for 3 Pulley ATD used in Tram-way OHE?
147. What is the mechanical advantage of Winch type ATD?
148. Z value of Winch type ATD at 35°C ?
149. X value increases and Y value decreases with increase in temperature. (True/False)
150. What is the mechanical advantage of three pulley type ATD?
151. Out of Winch Type and 3 Pulley type ATD which one better and why?
152. Which one is reference for ADT?

- a) 35°C b) 27 °C c) 20 °C d) 30 °C
153. During POH of ATD it is good to reverse the ends of SS rope.(True/False)
154. TI/MI0028 states about maintenance of -----.
155. In case of Insulated Overlap the clearance between both the OHE is -----.
156. Implantation of obligatory structures -----.
157. In case of Un- Insulated Overlap the clearance between both the OHE is -----.
158. Identify from the given that does not indicate the type of a Turn- Out.
 1) PTFE type 2) Regulated type 3) Semi-Regulated type 4) Cross- type
 a) 4, 2 b) 3, 4 c) 1, 2, 3 d) 1, 4
159. Crossing span should not be more than ----- mts in case of Overlap type Tynout.
160. In general the Encumbrance is maintained at ----- mts.
161. Steady Clearance with Drop Bracket Clamp is -----mm.
162. Distance between Mast Top and Bottom fitting of a Bracket Assembly?
163. Size of Bracket tube for Platform location Bracket Assembly?
164. At support the axial distance between Catenary and contact wire is called as?
165. How much is minimum Encumbrance?
166. Size of BFB Steady Arm?
167. Distance of G jumper from support?
168. Duration of replacement of PG clamp?
169. How many PG clamps are required for a G jumper?
170. Size of Structure Bond?
171. Z bond is provided nearby to track circuit.(True/False)
172. Distance between two Cross Bonds on main line?
173. The minimum permissible size of Bond is?
174. PTFE neutral section is provided in SSP overlap.(True/False)
175. What is the length of short PTFE type Neutral Section?
176. What is wrong in connection with Neutral Section?
 a) It isolates supply of two different phases.
 b) AC engines pass this section by their momentum.
 c) It is located corresponding to SP switching station.
 d) It improves power factor.
 e) Non of the above.
177. Which one do not requires earth pit?
 a) Isolator b) PTFE neutral section
 c) Over line structure d) Over Lap type N/S
178. Stagger of PTFE type Neutral Section?
 a) 0 b) +100 c) -100 d) +/- 200
179. Stagger of Neutral OHE in Over Lap type Neutral Section is?
180. No. of Caution Boards applicable to each Neutral Section is?
181. The stagger of section insulator should be -----.
182. Encumbrance at Section Insulator should not be less than -----mm
183. Clearance between trailing side runner of section insulator and Contact wire is -----
184. Size of Section Insulator Runner is ----- X -----.
185. For all conditions of section insulator a speed restriction of 80KMPH shall be applicable.(True/false)
186. Generally the Tension length of regulated OHE is -----.

187. Anchoring height of Regulated OHE -----.
188. Cross Sectional area of Catenary Wire is -----.
189. What we find in current collection test?
190. What is current rating of 25 KV AC OHE in Simple catenary system?
191. Anchoring height of Un- Regulated OHE -----.
192. Minimum Height of OHE in Loco Shed? -----
193. The distance between two consecutive C jumpers in regulated OHE? -----.
194. Maximum tension length of Regulated OHE -----.
195. The minimum clearance of 25KV OHE and Over line Structure?-----.
196. Bridle Wire is used for ----- type OHE.
197. Rigid dropper can be used on main line.(True/False)
198. Periodicity of Current Collection test is 3 months.(True/False)
199. Tolerance in OHE height is -----mm
200. Is the tolerance applicable for minimum height and implantation?(YES/NO)
201. General tendency of contact wire parting is at-
a) ACC b) RRA c) FTA d) BWA
202. Adjustable Dropper is used for –
a) ATD b) RRA c) Section Insulator d) ACA
203. Contact Ending Cone is not used at –
a) BWA b) FTA c) ACA d) Non of the above.
204. Cross Sectional area of new contact wire -----.
205. Diameter of new Contact Wire -----.
206. Condemning diameter of Contact wire for Main Line -----.
207. Condemning diameter of Contact wire for Yard Line -----.

PSI

208. Unit of Current is -----.
209. Unit of Voltage is -----.
210. Unit of Resistance is -----.
211. Ampere is the unit of -----.
212. A volt is the Unit of -----.
213. Ohm is the unit of -----.
214. Ammeter is used for measurement of -----.
215. Voltmeter is used for measurement of -----.
216. Ohmmeter is used for measurement of -----.
217. Multimeter is used for measurement of -----.
218. Unit of Insulation Resistance is -----.
219. The Meter used for measurement of Insulation Resistance is -----.
220. Megger is used for measurement of -----.
221. Mega-Ohms is the unit of -----.
222. $1\text{M}\Omega$ = ----- ohms.
223. In a circuit, the Ammeter shall be connected in -----.
224. In a circuit, the Voltmeter shall be connected in -----.
225. 1 Kilometer = ----- meter.
226. 1 Meter = ----- centimeter.

227. 1 Centimeter = ----- millimeter.
228. 1 Foot = -----inches.
229. 1 Inch = -----centimeters.
230. Unit of electrical energy consumption is -----.
231. Unit of Electrical Power is -----.
232. Horse –Power is the unit of -----.
233. Kilogram-Meter per Second is the unit of -----.
234. 1HP = ----- watts.
235. ----- Circuit converts AC supply into DC supply.
236. ----- Circuit converts DC supply into AC supply.
237. The ideal value of Power Factor is -----.
238. In case of Power Factor, out of 8.0 and 0.88, which one shall be better than 0.80?
239. Maximum voltage for 25 KV AC OHE is -----.
240. Minimum voltage for 25 KV AC OHE is -----.
241. The ideal value of Insulation Resistance is -----.
242. Working Clearance for 25 KV AC OHE is -----.
243. A drawing made by viewing the object right from its top is called as -----.
244. A drawing made by viewing the object right from its front is called as -----.
245. To have complete information of the object from drawing –
 - a) Plan is sufficient.
 - b) Plan & Elevation is sufficient.
 - c) Plan, Elevation & End view shall be required.
 - d) Non of these.
246. According to Ohm's law which relation is incorrect?

a) $I = \frac{V}{R}$

b) $R = \frac{V}{I}$

c) $V = I \times R$

d) $V = \frac{I}{R}$
247. Which type of material is classified as per temperature?
 - a) Conductor
 - b) Insulating
 - c) Semi conducting
 - d) Magnetic.
248. For a series connected circuit which statement shall be incorrect?
 - a) Current shall be equal to all loads.
 - b) Current through all loads shall be equal but voltage drops shall be different.
 - c) Current shall different to different points of circuit.
 - d) Circuit current shall depend on total resistance of the circuit.
249. What is in correct in connection with Ohm's law?
 - a) It states the relation among the voltage, current & resistance in a closed circuit.
 - b) Circuit current is proportional to the voltage imposed.
 - c) Circuit current is inversely proportional to the circuit resistance.
 - d) Temperature has no effect on this relation.
250. A freely suspended magnet will always rest in ----- direction.
251. Magnetic poles are generally known as -----.
 - a) North- South
 - b) East- West
 - c) EMF- MMF
 - d) UP-DOWN
252. Which one is incorrect to natural magnet?
 - a) Loss of magnetic properties on heating.
 - b) Similar poles repel and opposite attract each other.
 - c) A magnet attracts all metals.
 - d) Small pieces of a magnet shall also be a magnet.
253. When current is flown through the wire, wound on a iron piece ,the iron piece becomes-

- a) Natural Magnet b) Electro-Magnet c) Steel d) Mild Steel.
254. How a Electromagnet differs from a Natural Magnet?
 a) Number of poles may be arbitrarily chosen. b) Magnetic line of force is reversed.
 c) Strength of poles depends on size of magnet d) Temporary Magnetism.
255. Electromagnetism is not used in -----
 a) Compressor motor contactor. b) Battery charger.
 c) 42 KV LA d) Taret CT
256. ----- Works on principle of electromagnetism.
 a) LA b) Capacitor c) CB d) AT
257. The lowest category of insulating materials as per thermal classification is -----.
258. According to thermal classification of insulating materials category Y materials are suitable for temperature limit -----.
 a) 0°C b) 180°C c) 90°C d) 270°C
259. The highest category of insulating materials as per thermal classification is -----.
260. According to thermal classification of insulating materials category Y materials are suitable for temperature limit -----.
 a) Above 0°C, up to 80°C b) Above 0°C, up to 90°C
 c) Up to 150°C d) Above 180°C
261. The vital component of a rectifier circuit is?
 a) Resistor b) Diod c) Capacitor d) Chock Coil
262. Normally generation of electrical energy is done in ----- phases.
 a) 1 b) 2 c) 3 d) 4
263. ACTM has relation with?
 a) Maintenance of TRD installations.
 b) Directives for different departments in electrified section.
 c) Working of TPC d) All of the above.
264. Direction of electric current flow is –
 a) From high voltage to low voltage. b) Low voltage to high voltage.
 c) Between two points that's voltage is same. d) There is no such rule.
265. Whenever OHE voltage goes down to ----- KV or less, the TPC gets catenary indication.
266. Tests that can be done by the same measuring equipment –
 a) PI / IR b) BDV / DGA c) THRC / IR d) PPM / DGA
267. What do you mean by unit consumed in connection with Electric Meter Reading?
 a) KVA b) KVAR c) KWH d) KA
268. What do you mean by Range in context with Megger ?
 a) Max value of MΩ on scale. b) Voltage.
 c) RPM of rotating handle. d) Initial value of MΩ on scale.
269. Identify the symbol of Infinity.
 a) MΩ b) & c) ∞ d) °C
270. TR-1 is given to -----.
271. Competency Certificate given to OHE Lines Man is -----.
272. TR-5 Competency Certificate is given to –
 a) OHE Lines Man b) PSI fitter
 c) RC artisan d) PSI Supervisor.
273. According to TR-2 a Lines Man is not authorized for-

- a) Work on OHE.
c) Switching operation in Switching Station despite of permission granted by TPC.
d) Commissioning of new installations.
- b) 25KV isolator operation.
274. TR-5 permits a PSI artisan for –
a) Issuing PTW.
c) Commissioning of new installations.
d) Shutting down 25KV installations according to instructions of TPC.
b) Receiving PTW of EHV lines
275. Which method of safety is generally not adopted during power block on a Sub-Sector?
a) PTW
b) Prohibition of AC engines to enter in power block section.
c) To tripe Feeder CB.
d) Application of Discharge Rods.
276. Skilled Artisan of Remote Control is given the Competency Certificate TR-----.
277. Maximum Permissible distance between two discharge rods is?
a) 1 meter
b) 10 meter
c) 100 meter
d) 1000 meter.
278. What care should be considered while clamping a discharge rod on a mast?
1. Cable and lug connection.
2. Availability of discharge rod on both sides of the spot.
3. Availability of Structure bond.
4. Distance between consecutive discharges rods.
a) 1, 2
b) 2, 3
c) 2, 4
d) all of the above.
279. Ohm's law states the relation among Voltage, Current & Resistance. (True/False)
280. Resistance of a wire increases with increase in its length. (True/False)
281. Resistance of a wire decreases with increase in its length. (True/False)
282. The resistance of a wire decrease with increase of its thickness. (True/False)
283. The resistance of a wire increases with increase of its thickness. (True/False)
284. Resistance of conductors increase with temperature. (True/False)
285. Resistance of conductors decreases with increase in temperature. (True/False)
286. Resistance of insulating materials increases with temperature. (True/False)
287. Resistance of insulating materials decreases with increase in temperature. (True/False)
288. Resistance of conducting materials varies according to temperature. (True/False)
289. Conversion of AC supply into DC is possible, but the reverse is not. (True/False)
290. Value of Insulation Resistance is independent of temperature. (True/False)
291. Insulation Resistance decreases with increase of temperature. (True/False)
292. Electrical Clearance and Working clearance are the two different name of the same vary fact. (True/False)
293. The drawing called as Plan, depicts all the three dimensions (Length,Width,Height) of the object. (True/False)
294. The poles of a magnet can simply be made separated by cutting the magnet into pieces. (True/False)
295. A magnet shall always have two poles. (True/False)
296. Insulating properties of insulating materials get affected by temperature; therefore, these have been classified into temperature groups. (True/False)

297. Selection of megger shall be done according to rated voltage of the winding under IR test. (True/False)
298. Winding Resistance and insulation resistance are two different names of the same vary fact. (True/False)
299. For safety considerations the distance between two discharge rods should not be more than 1 KM.
300. Discharge Rod should be clamped on that mast only which is having structure bond connected. (True/False)
301. A combination of cells shall be called as -----.
302. Cell voltage of a lead –acid cell is -----.
303. Electric cell converts ----- energy into electrical energy.
304. Supply available from a electric cell is ----- (AC or DC)
305. Basically a battery charger is a ----- circuit.
306. The cell voltage of a fully charged Leas-Acid cell is -----.
307. A Lead-Acid cell shall be said fully discharged when its voltage drops down to -----
308. Electrolyte of a Lead –Acid Cell is prepared from Sulfuric Acid and -----.
309. Electrolyte of a Lead –Acid Cell is prepared from Distilled Water and -----.
310. The SPG of electrolyte of fully charged lead-acid cell is -----.
311. A Lead-Acid cell shall be said as fully discharged when SPG of its electrolyte drops down to -----.
312. Unit to indicate battery capacity is -----.
313. The battery----- increases if the cells are connected in series. (Voltage, Capacity)
314. The Battery ----- increase if the cells are connected in parallel.(Voltage, Capacity)
315. The battery ----- depends upon its size.(Voltage, Capacity)
316. General maintenance of a battery set is done at an interval of ----- days.
317. As a temperature correction ----- shall be added or deducted from the SPG readings of electrolyte taken from hydrometer for per degree temperature variations.
318. The reference temperature for Temperature Corrections in SPG readings of electrolyte is -----.
319. What shall generally be added to maintain the level of electrolyte in a cell? (electrolyte, distilled water, acid)
320. To keep a battery set at very low charging rate is called as? (Boost Charging, Trickle Charging)
321. To charge a battery set at very high rate for a short period is called as? (Boost Charging, Trickle Charging)
322. To prepare electrolyte which type of pot is suitable? (Stain less Steel, Glass or Porcelain, Cupper)
323. The white aggregate appearing on the terminals of a battery is called as -----.
324. Sulfation is a indicator of ----- health of the battery. (Good, Bad)
325. The SPG of electrolyte ----- when the battery gets charge. (Increase, Decrease)
326. The SPG of electrolyte ----- when the battery gets discharge. (Increase, Decrease)
327. Battery rating for a TSS is -----AH.
328. Battery rating for a SSP is -----AH.
329. Battery rating for a SP is -----AH.
330. ----- is used for measurement of SPG of electrolyte.
331. SPG of distilled water is ?

- a) 1.000 b) 1.180 c) 1.220 d) 2.2
332. What is true for DC supply and distilled water?
 a) DC current can not flow through distilled water.
 b) DC current can flow through distilled water,
 c) DC current gets stored in distilled water.
 d) DC gets converted into AC.
333. What you expect from a battery kept on high charging rates for a long time?
 a) Nothing special. b) Plates may be damaged by getting very hot.
 c) Change of polarity d) Increased capacity.
334. Electrolyte bubbling heavily, it is a indication of?
 a) Over charging b) Under charging c) No load d) Discharged
335. What are the conditions for better performance of a battery set?
 1. Equal cell voltages. 2. Equal AH
 3. Equal SPG of Electrolyte. 4. Correct connection.
 a) 1, 4 b) 3, 4 c) 1, 2, 3 d) all of the above.
336. What is incorrect for a 40AH capacity battery?
 a) 1 ampere for 40 hours b) 40 ampere for 1 hours
 c) 4 ampere for 10 hours d) A rate of current supply as 40 ampere per hour.
337. All types of cells can be used repeatedly by repeated charging. (True/False)
338. Primary cells can not be recharged after getting discharged. (True/False)
339. Secondary cells can not be recharged after getting discharged. (True/False)
340. DC supply source is required for charging a cell. (True/False)
341. A cell can be charged through AC supply. (True/False)
342. Electrolyte is an example of insulating material. (True/False)
343. Electrolyte is an example of conducting material. (True/False)
344. The Electrolyte of Lead-Acid battery is of acidic nature. (True/False)
345. The Electrolyte of Lead –Acid Battery is of basic nature. (True/False)
346. Distilled water is of Neutral Nature. (True/False)
347. To prepare the electrolyte one part sulfuric acid is mixed with three or four part of distilled water. (True/False)
348. To prepare the electrolyte one part sulfuric acid is mixed with three or four part of ordinary water. (True/False)
349. Battery capacity may be stated as KW. (True/ False)
350. The voltage increases and the capacity remain constant, if the cells are connected in series. (True/ False)
351. The voltage increases and the capacity remain constant, if the cells are connected in parallel. (True/ False)
352. The capacity of cell increases with increase of its size. (True/ False)
353. The Voltage increases with increase of the size of cell. (True/ False)
354. To connect positive terminal with the positive one, shall be a parallel connection. (True/ False)
355. To connect positive terminal with a negative one, shall be a parallel connection. (True/ False)
356. To prepare the electrolyte, acid shall be poured into distilled water. (True/ False)
357. To prepare the electrolyte, distilled water shall be poured into acid. (True/ False)

358. For each degree rise of temperature above 27°C, the hydrometer reading should be added with 0.0007. (True/ False)
359. The hydrometer reading should be deducted with 0.0007 for each degree rise of temperature above 27°C (True/ False)
360. The hydrometer reading should be added with 0.0007 for each degree fall of temperature below 27°C. (True/ False)
361. The hydrometer reading should be deducted with 0.0007 for each degree fall of temperature below 27°C. (True/ False)
362. The gas emerging from a battery may cause explosion. (True/ False)
363. The orifice at the top of vent plug should normally be open, but should be closed during boost charging. (True/False)
364. The orifice at the top of vent plug should normally be closed. (True/False)
365. The orifice at the top of vent plug should normally be open. (True/False)
366. Unit of specific gravity is gram per cubic centimeter. (True/False)
367. Specific gravity has no unit. (True/False)
368. Battery rating for TSS is 200AH. (True/False)
369. Battery rating for SP, SSP is 40AH. (True/False)
370. Battery rating for all switching stations has been standardized as 200AH. (True/False)
371. Normally battery with higher AH capacity sizes bigger. (True/False)
372. Cell voltage of lead-acid cell does not depend on its size. (True/False)
373. Hydrometer is used for measurement of SPG. (True/False)
374. The unit of Transformer capacity is -----.
375. How many numbers of winding are there in a single phase transformer? (Two, One)
376. Healthy silica gels colors is ----- (Pink / Blue)
377. Silica Gel turns ----- (colour) absorbing moisture.
378. BDV of Transformer oil should be ----- KV.
379. Colour of New transformer oil is -----.
380. ----- is fixed between Bell Tank and Conservator tank.
(Buchholtz relay/ Breather)
381. The transformer oil should be replaced if it turns----- (colour)
382. What is the use of transformer oil?
a) Insulation b) Cooling c) Both the above.
383. Transformer Oil is categorized as?
a) Edible oil b) Fuel c) Insulating oil
384. Which device is used to protect the transformer from excessive internal pressure?
a) PRD b) Buchholtz Relay c) MOLG d) Drain Cork.
385. ----- is used for low oil level protection.
386. What is used for cooling of a transformer?
a) Conservator tank b) Radiator c) Breather d) Core
387. The power loss that occurs in transformer winding is called as-----.
388. The power loss that occurs in transformer core is called as-----.
389. The ratio of rated voltage of primary and secondary winding of a transformer is called as -----.
390. For a transformer, the product of primary side voltage and current is equal to product of secondary side voltage and -----.
391. ----- is the unit to express moisture content in transformer oil.

392. POH of Power Transformer is done after -----years.
393. Insulation Resistance between LV and E at 30°C for a 132KV / 25KV transformer should not be less than-----.
394. Insulation Resistance between HV and E at 30°C for a 132KV / 25KV transformer should not be less than-----.
395. Insulation Resistance between LV and HV at 30°C for a 132KV / 25KV transformer should not be less than-----.
396. Traction Transformer can be run for ----- minutes at 50% over load.
397. Traction Transformer can be run for 15 minutes at -----% over load.
398. Traction Transformer can be run for ----- minutes at 100% over load.
399. Traction Transformer can be run for 5 minutes at -----% over load.
400. Setting for oil temperature alarm is -----°C.
401. Setting for oil temperature trip is -----°C.
402. Setting for winding temperature alarm is -----°C.
403. Setting for winding temperature trip is -----°C.
404. Traction Transformer is normally equipped with ----- tap changer.
(On load / off load)
405. The ratio of number of turns in primary and secondary winding of a transformer is called as -----.
406. Transformer Oil is dangerous since it is -----.
- a) Inflammable b) Toxic c) Hygroscopic d) Unnatural.
407. Out of the following relations , what would be incorrect for a transformer where N indicates number of turns, V voltage and I current.

a) $\frac{N_1}{N_2} = \frac{V_1}{V_2}$ b) $\frac{V_1}{V_2} = \frac{I_2}{I_1}$ c) $\frac{N_1}{N_2} = \frac{V_1}{V_2} = \frac{I_1}{I_2}$

408. ONAN / ONAF are the types of –
- a) Transformer cooling system. b) Winding
c) Tap Changer d) Earthing
409. What it indicates, if the terminal connection of a transformer appear bad in colour.
- a) Abnormal heating of terminals due to loose connection b) Transformer Over load
c) Higher EPR. d) Non of the above.
410. Transformer oil sample Crackles on heating ; it is an indication of –
- a) Increased acid content. b) Too cold sample
c) Excessive Water content d) Improved BDV .
411. Oil temperature trip facility is given since at higher temperatures-
- a) Transformer oil becomes thick and immovable.
b) Insulating properties of insulations impair sharply.
c) Buchholtz relay trips.
d) It becomes difficult to operate tap changer due thicken transformer oil.
412. What is incorrect in context of Buchholtz Relay?
- a) It is an electromechanical relay.
b) It protects transformer from internal faults.
c) It requires collection of gas to operate.

- d) It is situated between bell tank and conservator tank.
413. In case of transformer bushing ,the value of $\tan-\delta$ testing should not be more than -----
414. In case of transformer bushing ,the value of capacitance should not be more than ---%
415. During maintenance, it is found that oil level in OIP Condenser bushing is low from the set value what action should be taken?
- Transformer can be taken on load.
 - Bushing shall be replaced.
 - On lowest tap transformer can be taken on load.
 - Tan- δ and Capacitance test shall be done and action shall be taken according to results.
416. No need to reset OTI/WTI during ----- scheduled maintenance.
- Monthly
 - Half Yearly
 - Yearly
 - Non of the above.
417. OTI indicates?
- Average temperature of transformer oil.
 - Maximum temperature of transformer oil.
 - Minimum Temperature of Transformer oil
 - Maximum permissible temperature of transformer oil
418. WTI indicates?
- Average Temperature of transformer winding.
 - Maximum temperature of transformer winding.
 - Minimum temperature of transformer winding.
 - Maximum permissible temperature of transformer winding.
419. According to TI/MI -38 what action shall not necessarily be done during monthly maintenance?
- EPR testing
 - Inspection of Slica gel breather.
 - Check OTI/WTI
 - To check bus bar connection for bad –colour.
420. Which Instrument is used for PI checking?
- Ammeter , Voltmeter , Watt meter
 - Earth Tester
 - Megger
 - BDV Tester.
421. Winding is said in good health ,if the value of Polarization Index is-
- Less than 1
 - More than 2
 - Value of Polarization Index does not indicate winding condition.
 - More than 1, less than 2.
422. Unit for measurement of Polarization Index.
- Volt per second
 - Mega –Ohms per second
 - Volt per rotation
 - there is no unit.
423. During half yearly maintenance ,oil sample for BDV test should be taken –
- Just after shutting down the transformer.
 - After cooling of transformer oil.
 - After keeping the transformer at 5 No. Tap for half an hour.
 - Sample bottle should be filled by taking small quantities over a considerable time during the maintenance.
424. The symbols R60/R10 and R600/R60 bear the relation with ----- .
- BDV
 - PPM
 - $\tan-\delta$
 - Polarization Index.
425. What does it mean by R60/R10 in relation with PI?
- Resistance of 60 Ω and 10 Ω .

- b) Megger readings after 10 sec. and 60 sec. respectively .
 c) Megger readings after 10 sec. and 60 sec when rotation of handle has been stopped.
 d) Non of the above.
426. According to TI/MI 38, what action should be taken if the value of PI test is less than 1.1 .
 a) Replace transformer oil. b) Transformer is in good condition.
 c) Oil filtration and again PI test. d) TI/MI38 do not say any thing about PI test.
427. Which test is not performed on transformer oil?
 a) IR b) DGA c) BDV d) PPM
428. DGA testing is a test of dissolved ----- in transformer oil.
429. ----- Test is done to test Electrical Strength of transformer oil.
 a) IR b) DGA c) BDV d) PPM
430. Which test should be done to know water quantity present in oil sample?
 a) Crackle Test b) PPM c) Colour Test d) Tan- δ Test.
431. Crackle Test is done to deduce the water quantity in oil sample.(True/false)
432. Factor that affects insulation resistance?
 a) Size of winding b) Temperature
 c) Moisture d) All of the above.
433. While meggering a transformer ,----- temperature should also be recorded along with the megger reading.
 a) Air b) MOLG c) OTI d) a & c
434. While meggering ,what should also be recorded on the test record along with megger reading?
 a) Megger Rating. b) Make & Serial Number
 c) Air & OTI d) All of the above.
435. To megger Traction Transformer 500 volt megger is suitable. (True /False)
436. What is incorrect about Oil filtration?
 a) Initially IR falls with rise of temperature.
 b) With filtering out dirt and moisture BDV improves.
 c) Oil filtration do not permits dissolved gases to escape out from oil.
 d) IR value increases with fall of oil temperature when filtration plant is shut-off.
437. Which test shall not be done for OIP condenser bushing during yearly maintenance?
 a) tan- δ b) Capacitance c) IR d) Crackle
438. Generally spark gap for 25KV bushing of traction transformer is
 a) 16.5 cm b) 25 cm c) 75 cm d) 1mt.
439. On selection of higher taps of a tap-changer voltage increases since-
 a) No. of turns in winding increases.
 b) Winding resistance reduces.
 c) Insulation resistance of winding reduces
 d) Incoming voltage to winding increases.
440. Electrode gap of BDV tester is -----mm.
441. Bushing CT is associated with?
 a) Power Transformer b) AT- 100KVA c) AT at SP d) Feeder CB
442. Bushing CT is provided with all bushings of a power transformer. (True / False)
443. Location of PRD?
 a) Behind control panel b) below marshaling box

- c) Above bell tank
- d) beside conservator tank.
444. Is it true that in the course of usage, acid forms naturally in transformer oil? (Yes/No)
445. Is transformer oil a inflammable liquid? (Yes/ No)
446. Capacity of a transformer is expressed in KW. (True/False)
447. Buchholtz relay is oil pressure relay. (true/false)
448. Transformer capacity is expressed in KVA.(true/false)
449. BDV value of transformer oil should not be less than 60KV.(true/false)
450. BDV value of transformer oil should not be more than 60KV.(true/false)
451. In a TSS, concrete wall between both the transformers is known as Baffel –Wall. (true/false).
452. Transformer oil is a mineral-oil used as fuel .(true/false)
453. Synthetic oils can also be used as Transformer –Oil.(true/false)
454. Sampling of transformer oil should be done in dry, hot and clear atmosphere. (true/false)
455. PRD is used to protect the transformer from high internal pressure.(true/false)
456. Drain Cork is used to protect the transformer from high internal pressure.(true/false)
457. In context of transformer, copper loss means wear & tear of winding. (true/false)
458. In context of transformer, Iron-loss means wear & tear of Core. (true/false)
459. Step-up transformer increases voltage. (true/false)
460. Step-down transformer reduces electrical power. (true /false)
461. Transformer is a device which bridges high and low voltage circuits. (true/fase)
462. Periodicity of POH of Power transformer is 4 years. (true/false)
463. New transformer oil is clear and transparent in colour. (true/ false)
464. Out put voltage of a transformer can be controlled by tap-changer. (true/false)
465. There is no relation between turn ratio and voltage ratio of a transformer.(true/false)
466. Transformers may also be classified on number of phases. (true/fase)
467. In case of Auto transformer, both the primary and secondary terminals are connected with the same winding.(true/false)
468. A transformer works only in one direction that is , imposing voltage to primary voltage appears on secondary terminals but imposing voltage to secondary no voltage appears on primary terminals. (true/false)
469. Transformer work in both directions, i.e. primary to secondary and vice-versa. (true/false)
470. If an ONAN transformer is turned to ONAF, its capacity improves. (true/false)
471. Normally HT bushing is oil filled type. (true/false)
472. HT bushing is always shield type. (true/false)
473. On BDV test, if the results are less than the standard one, oil filtration should be done. (true/false)
474. It indicates some thing abnormal if there is considerable rise in readings of OTI/WTI from that of last readings. (true/false)
475. That actions are not required during the half yearly maintenance which are done in monthly maintenance.(true/false)
476. Before meggering it is compulsory to make the bushing free from dust and moisture. (true /false)
477. In case of single phase traction transformer, it is not compulsory to open terminal connections prior to meggering of the transformer. (true/false)

478. Tan δ test indicates the quality of the insulating material. (true/false)
479. For transformer bushing, value of tan- δ should not be less than 0.007. (true/false)
480. Capacitance value for transformer bushing should not be less than 110% of factory set value.(true/false)
481. CB controls the supply of -----.(Sector, Sub-Sector,Elementry Section)
482. BM controls the supply of -----.(Sector, Sub-Sector,Elementry Section)
483. Isolator controls the supply of -----.(Sector, Sub-Sector,Elementry Section)
484. On faults----- trips automatically. (CB, BM, OHE, PT-II)
485. OFF load hand operated switch is well known as ----- (CB,BM, MCB,Isolator)
486. What is not controlled by TPC through remote control? (CB, BM, DPI)
487. What is common among TPI, DPI, SPI and BPI?
- A CB is connected to all of them.
 - All of them is used for transformer isolation.
 - All are located in a FP.
 - Each of them is a type of isolator.
488. When 25KV isolator is in opened condition, what should be the clearance between its fixed and moving contact?
489. Code ----- is prefixed before number of isolator connected with main line OHE.
490. Out of the following, what is not there in the pole unit of CB/BM?
- Fix and Moving Contact.
 - Arc quenching medium.
 - Main and Arcing Contact.
 - Auxiliary contact.
491. Out of the following, what is not the type operating mechanism of a CB or BM?
- Air open/ Air Close
 - Spring open / spring close
 - Air open / spring close.
 - ONAN / ONAF
492. What is not compulsory for maintenance of CB / BM?
- To obtain PTW from TPC.
 - To open SPI/DPI from both sides.
 - To keep switch gear on local control.
 - To keep 110 volt DC supply switched off during the work.
 - Non of the above.
493. Normally gas pressure in SF6 type CB/BM is maintained at -----.
494. Low gas pressure alarm operates at ----- kg/cm² for SF6 CB/BM ,where normal gas pressure is 5 Kg/cm²
495. SF6 CB/BM(5Kg/cm²) locks-out at low gas pressure of ----- kg/cm².
496. Which component of SF6 CB/BM generates low gas pressure alarm/lock-out signals?
497. Function of Gas Density switch is –
- to check purity of SF6 gas.
 - to control total break time .
 - to generate signal according to gas pressure in pole unit.
498. ----- is used to check gas pressure in pole-unit.
(Gas density switch, Gas pressure gauge, Compressor)
499. Normal working air pressure for 25KV CB/BM is -----.
500. Air pressure alarm, for 25KV CB/BM, operates at -----.
501. 25KV CB/BM locks out due to low air pressure at -----
502. In a 25KV CB/BM air pressure is maintained by -----
- Compressor
 - Air pressure limit switch
 - Safety valve
 - TPC

503. In 25KV CB/BM, ----- is used for safety of Air Cylinder.
504. -----°C is taken as Standard for determination of Gas Pressure in 25KV CB/BM.
505. Only a competent railway servant can operate the 25KV Isolator switch. (True/False)
506. Operation of 25KV Isolator switch is permitted to all railway servants. (True/False)
507. In open state ,the clearance between fix and moving contact of an 25KV Isolator should be 500mm. (True/False)
508. In open state ,the clearance between fix and moving contact of an 132KV Isolator should be more than 500mm. (True/False)
509. On-Load operation of an 25 KV isolator switch should not be done. (True/False)
510. An elementary section can be isolated by isolator switch. (True/False)
511. Nitrogen Gas is filled in the pole unit of Vacuum type CB. (True/False)
512. Any type of Gas or Air is not filled in the pole unit of Vacuum type CB/BM, (True/False)
513. Total Break time of 25KV single pole SF6 Circuit Breaker should not be more than 65 milli-seconds. (True/False)
514. Total Break time of 25KV single pole SF6 BM should not be more than 80 Mili-seconds. (True/False)
515. In no condition SF6 gas can convert into liquid state. (True/False)
516. At some specific high pressure and low temperature, SF6 gas converts into liquid state. (True/False)
517. PTW must be obtained from TPC for the maintenance of CB/BM. (True/False)
518. It is safe to keep the CB/BM on local control while its maintenance is in progress. (True/False)
519. It is safe to switch off 110 volt DC supply of CB/BM while its maintenance is in progress. (True/False)
520. Gas density switch generates alarm according to gas pressure in the pole unit. (True/False)
521. It is impossible to check the settings of gas density switch. (True/False)
522. Combined earth pit resistance of a TSS should not be more than ----- Ω .
523. Combined earth pit resistance of a SSP should not be more than ----- Ω .
524. Combined earth pit resistance of a SP should not be more than ----- Ω .
525. Single earth-pit resistance should not be more than -----.
526. The ideal value of EPR would be -----.
527. As per ACTM, earth electrodes should be ----- meters long.
528. As per ACTM, bore of earth electrodes should be ----- cm.
529. As per ACTM, minimum separation between two earth pits is -----.
530. Treatment by mixture of salt-charcoal should be done if the EPR is less than 10 Ω . (true/false)
531. Treatment by mixture of salt-charcoal should be done if the EPR is more than 10 Ω . (true/false)
532. It is good to pour water in earth pit at a regular interval. (true/false)
533. Over a year, EPR should be checked during dry and hot season. (true/false)
534. In a switching station, all earth electrodes are connected in ----- connection. (series/parallel)
535. Earth pit for remote control equipment should not be connected with earth pits/ earth grid of switching station. (true/false)

536. Earthing for RCE should not be connected with earthing of switching ,because-
- a) Traction current may harm to RCE equipments.
 - b) RCE equipments work on DC supply.
 - c) There is no such restriction.
537. LA rating for 25KV system is -----.
538. LA rating for 110KV system is -----.
539. LA rating for 132KV system is -----.
540. LA rating for 220KV system is -----.
541. The abnormal conditions ,LA protects from, is ---
- a) Short circuit
 - b) Open circuit
 - c) Low voltage
 - d) Voltage surge.
542. LA may be tested from Megger. (true/false)
543. Prior to erection, LA should be tested from -----.
544. POH of LA should be done after 4 years. (true/false)
545. There is no POH schedule for LA. (true/false)
546. 42KV LA should be Meggered by 500 volt megger. (true/false)
547. Megger value for 42KV LA should be? (2500MΩ , 1GΩ , 10GΩ, 200KΩ)
548. Megger value for 198KV LA should be? (2500MΩ , 1GΩ , 10GΩ, 200KΩ)
549. LA is connected between line and earth. (True / False)
550. In three phase system (132 KV) , LA is connected between any two phases. (True / False)
551. Within a TSS, the minimum height of 25KV bus-bar from ground level is -----.
552. Control circuits for switching stations works on ----- volts DC.
553. In a TSS, voltage ratio of 100KVA AT is ---
- a) 100KV /230 volt
 - b) 100KV/440 volt
 - c) 25KV/230 volt
 - d) 25KV/ 440volt.
554. Electrical Clearance for 25KV system is -----.
555. Catenary indication is a must for Closing Operation of -----
- a) Doors of control penal of TSS.
 - b) Sectioning BM of SSP
 - c) HV CB
 - d) Bridging BM.
556. At voltage ,lesser than 19 KV –
- a) Bridging BM gets open, if already closed.
 - b) Air compressor of CB gets stop.
 - c) HV/LV CB trips
 - d) Non of the above
557. On a SSP over lap, which side of OHE gets parallel by the paralleling BM of that SSP?
- a) TSS
 - b) SP
 - c) middle
 - d) both side
558. Bus –bar connection gets bad in colour, what it indicates for?
- a) Bus Bar is getting hot due to bad connection.
 - b) Connection is alright and bus bar do not getting hot.
 - c) General climatic effect on bus-bar.
 - d) Poor quality of bus- bar material.
559. Bus-bar connection should be opened, cleaned and retighten if -
- a) CB trips on WTI indication.
 - b) Pre-monsoon is being done.
 - c) Bus –bar is bad in colour.
 - d) Non of the above.
560. To deduce average PF of a TSS over a month, what items of meter reading of that TSS for the month shall be used?
- a) KVAH, KVARH
 - b) KVAH, KWH

- c) KVA, KVAR. d) KVA, KW.
561. What is meant from Earth-Screen, in context of a TSS?
 - a) Under Ground earth-grid. b) Earthed fencing around TSS.
 - c) A caution –board. d) Earth wire hanging on TSS gantry.
562. Under voltage relay is related with –
 - a) All BM of TSS b) Paralleling BM of SP and SSP.
 - c) Sectioning BM of SSP d) Bridging BM of SP.
563. A pair of ballast, used in switch-yard, serves as insulation. (True/False)
564. In a Traction Transformer, Bushing CT is used for –
 - a) OCR b) DPR c) EFR d) DFR
565. For a 132KV/25kV traction transformer, how many CT are required to Differential Protection?
 - a) 2 No LV target CT b) 2No. HV target CT
 - c) HV Gantry-CT, LV target CT d) HV and LV target CT
566. Differential protection works against which type of fault?
 - a) Internal faults b) Over voltage
 - c) Over current d) Low oil level.
567. OCR –T is protection from?
 - a) Sustained over Currents due to over load.
 - b) Sudden rise of current due to earth fault.
 - c) Over current due to earth fault away from TSS.
 - d) Sudden rise of current by 200% of normal current due to any reason.
568. DPR is Protection from?
 - a) Sustained over Currents due to over load.
 - b) Sudden rise of current due to earth fault.
 - c) Earth fault away from TSS.
 - d) Sudden rise of current by 200% of normal current due to any reason.
569. Which relay gets its input from both the CT and PT?
 - a) OCR b) DPR c) EFR d) DFR
570. Delta-I relay is said as back-up to DPR. (True/False)
571. Every type of CB is having the facility to alter the setting of its tripping current.(true/false)
572. What would you do, if you want to change the tripping current of a CB?
 - a) It might not be done; the CB would have been replaced.
 - b) CT would have been replaced.
 - c) Relay setting should be adjusted.
 - d) Battery voltage should be changed.
573. WPC relay is placed in SP. (true/false)
574. WPC relay is placed in TSS. (true/false)
575. What is correct about WPC relay?
 - a) One No in SP b) two No. in SP c) one No. in TSS d) two No. in TSS
576. Earth –Screen is a protection against –
 - a) Touch Voltage b) Step Voltage c) Lightning Stroke d) Earth Fault.
577. CTD is an interlock arrangement –
 - a) It is a false statement b) CB tripping and 110 volt DC supply
 - c) CB tripping and auto recloser. d) High voltage and alarm.

578. OCR-I is a protection against -
 a) Sustained over Currents due to over load.
 b) Sudden rise of current due to earth fault.
 c) Over current due to earth fault away from TSS.
 d) Sudden rise of current by 200% of normal current due to any reason.
579. ITR is a fault sensing relay. (true/false)
580. ITR is a auxiliary relay for transformer protection. (true/false)
581. It is not the auto –reset type relay-
 a) OCR b) DPR c) WPC d) ITR
582. Is it necessary to check the transformer before putting on load if it was out from circuit due to Differential relay? (Yes/No)
583. Voltage ratio of PT type I -----.
584. Voltage ratio of PT type II -----.
585. KVA rating of AT normally used for CLS is -----.
586. Voltage ration of AT normally used for CLS is -----.
587. Rating of AT normally used in SP/SSP is -----KVA
588. -----No of AT is used in TSS. (1, 2, 3, 4)
589. 100KVA AT of TSS is used for-
 a) Yard Lighting b) Stand by
 c) Filtration Plant d) Power Factor correction.
590. Rating of PT normally used for catenary indication is -----.
591. DO fuse rating for 10 KVA AT is -----.
592. Rating of KIT- KAT fuse for 10KVA AT is -----.
593. Minimum permissible Megger value between HT- E for a CT is -----MΩ
594. Minimum permissible Megger value between LT- E for a CT is -----MΩ
595. Minimum permissible Megger value between HT- LT for a CT is -----MΩ
596. Minimum permissible Megger value between HT- E for a PT is -----MΩ
597. Minimum permissible Megger value between LT- E for a PT is -----MΩ
598. Minimum permissible Megger value between HT- LT for a PT is -----MΩ
599. Minimum permissible Megger value between HT- E for a AT is -----MΩ
600. Minimum permissible Megger value between LT- E for a AT is -----MΩ
601. Minimum permissible Megger value between HT- LT for a AT is -----MΩ
602. In case of CT, number of turns in primary is ----- than number of turns in secondary.
603. In case of PT number of turns in primary is ----- than number of turns in secondary.
604. The secondary winding of a CT should not be open circuited if primary is charged-
 a) There is no such restriction. b) Primary becomes Over-Voltage
 c) CT winding will burn –out. d) CB can not be closed
605. Most suited place for cable storage is –
 a) Moist and Dark b) Moist and Sun light
 c) Dry and dark d) Dry and Sun light.
606. What is used to indicate the position of under ground cable?-----
607. Cable laying should be done in cable trenches ;due to
 a) Ease of maintenance. b) Mechanical protection
 c) Eases of identification during maintenance. d) all of the above.
608. While storing cables ,its ends should be properly covered by something like plastic etc.-

ANSWER – OBJECTIVE QUESTION ON TRD

1. Traction Distribution.
2. 1000 mts.
3. False.
4. Yes.
5. Permit to work.
6. 1000
7. 1676
8. 19
9. 40
10. 2
11. True
12. 4.67 mts.
13. Level Crossing.
14. b
15. Power Block working limit.
16. True
17. True
18. True
19. DCP
20. 25M Ω
21. 15.09 (1) b
22. Alternating Current Traction Manual.
23. 1000
24. 7
25. b
26. c
27. a
28. False.
29. TR-01
30. c
31. a
32. c
33. Sector.
34. Sub-Sector.
35. Sub-Sector.
36. Sector.
37. Sub-Sector.
38. c
39. c
40. 4
41. B
42. c
43. a
44. True

45. 2
46. d
47. d
48. True
49. False
50. c
51. Implantation.
52. 4.30 mts
53. 10-20 mts.
54. 20-30 mts
55. 30-40 mts
56. 152 X 152
57. 3 mts.
58. 5 & 8 mts.
59. 3.00 mts.
60. 72
61. 4.75
62. Clear span term is not used for TCC mast.
63. Yellow
64. Red
65. True
66. Leaning mast.
67. a
68. 15 cm
69. Mast Erection
70. 5 to 8 cm
71. 2.36 mts
72. 2.80 mts.
73. 27 mts
74. 18
75. 30
76. 4.5
77. 4.5
78. False.
79. 4
80. 6
81. 8
82. a
83. b
84. a
85. b
86. c
87. d
88. d
89. 6" x 6"
90. 6" x 8"

91. B125, B150 , B175
92. 150X300 mm
93. 9.3 , 9.5 mts.
94. 1350 mm
95. True.
96. True
97. False
98. True
99. 2.50
100. 2.90
101. True
102. True
103. True
104. d
105. False
106. True
107. 63 mts
108. 30 mts.
109. True
110. Creepage
111. d
112. True
113. c
114. Porcelain
115. 3
116. Yes
117. a
118. Long Creepage distance.
119. Special Rubber.
120. 6930
121. 4900
122. g
123. d
124. d
125. Isolator operation / DO fuse operation
126. c
127. 500 mm
128. True
129. True
130. SM
131. SS
132. True
133. c
134. c
135. a
136. 800 , 1250

- 137. True
- 138. d
- 139. False
- 140. Balmerol-100
- 141. 10.5 mts
- 142. 8.5 mts
- 143. 10.5 mts
- 144. 8.5 mts
- 145. 250 kg
- 146. 415 kg
- 147. 1:5
- 148. 1.25 mts
- 149. False.
- 150. 1:3
- 151. 3 Pulley type , since chances of SS rope breakage is minimum.
- 152. a
- 153. True
- 154. Turn Outs, Cross- Over
- 155. 500 mm
- 156. 3.00 mts
- 157. 200 mm
- 158. c
- 159. 54
- 160. 1.40
- 161. 300
- 162. 1.90 / 2.00 mts
- 163. 40/49 mm
- 164. Encumbrance
- 165. 30cm
- 166. 32x31 mm
- 167. 5.6 mts
- 168. 4 years
- 169. 8
- 170. 40 x 6 mm
- 171. True
- 172. 350 mts
- 173. 200 sqmm
- 174. False
- 175. 3.74 mts, 9.40 mts
- 176. d
- 177. d
- 178. a
- 179. -50mm
- 180. 4
- 181. Zero
- 182. 450

- 183. 220mm
- 184. 40 x 8 mm
- 185. False
- 186. 1500 mts
- 187. 6.75 mts
- 188. 65 sqmm
- 189. Spark Locations
- 190. 600 Amps
- 191. 6.95 mts
- 192. 5.80 mts
- 193. 350 mts
- 194. 1600 mts
- 195. 250mm
- 196. Tram-Way
- 197. False
- 198. True
- 199. 20 mm
- 200. NO
- 201. b
- 202. c
- 203. c
- 204. 107 sqmm
- 205. 12.24 mm
- 206. 8.25 mm
- 207. 8.00 mm

PSI

- 208. Ampere
- 209. Volts
- 210. Ohms
- 211. Current
- 212. Voltage
- 213. Resistance
- 214. Current
- 215. Voltage
- 216. Resistance
- 217. Current, Voltage, Resistance
- 218. Mega- Ohms
- 219. Megger
- 220. Insulation resistance
- 221. Insulation Resistance
- 222. 10 lakhs Ohms
- 223. Series
- 224. Parallel
- 225. 1000
- 226. 100
- 227. 10

- 228. 12
- 229. 2.54
- 230. KWH
- 231. Watt.
- 232. Mechanical Power.
- 233. Mechanical Power
- 234. 746
- 235. Rectifier
- 236. Inverter
- 237. 1
- 238. 0.88
- 239. 27.5
- 240. 19
- 241. ∞
- 242. 2 mts
- 243. Plan
- 244. Elevation
- 245. c
- 246. d
- 247. b
- 248. c
- 249. d
- 250. North- South
- 251. a
- 252. c
- 253. b
- 254. d
- 255. c
- 256. d
- 257. Y
- 258. c
- 259. C
- 260. d
- 261. b
- 262. c
- 263. d
- 264. a
- 265. 19
- 266. a
- 267. c
- 268. b
- 269. c
- 270. Khalasi
- 271. TR-2
- 272. b
- 273. d

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- 274. c
- 275. c
- 276. TR-7
- 277. d
- 278. d
- 279. True
- 280. True
- 281. False
- 282. True
- 283. False
- 284. True
- 285. False
- 286. False
- 287. True
- 288. True
- 289. False
- 290. False
- 291. True
- 292. False
- 293. False
- 294. False
- 295. True
- 296. True
- 297. True
- 298. False
- 299. True
- 300. True
- 301. Battery
- 302. 2.2 volts
- 303. Chemical
- 304. DC
- 305. Rectifier
- 306. 2.2 volts
- 307. 1.8 volts
- 308. Distilled water
- 309. Sulfuric Acid
- 310. 1.220
- 311. 1.180
- 312. AH
- 313. Voltage
- 314. Capacity
- 315. Capacity
- 316. 15
- 317. 0.0007
- 318. 27°C
- 319. Distilled Water

- 320. Trickle
- 321. Boost Charging.
- 322. Glass or Porcelain
- 323. Sulfation
- 324. Bad
- 325. Increases
- 326. Decreases
- 327. 200
- 328. 40
- 329. 40
- 330. Hydrometer
- 331. 1.000
- 332. a
- 333. b
- 334. a
- 335. d
- 336. d
- 337. False
- 338. True
- 339. False
- 340. true
- 341. False
- 342. False
- 343. True
- 344. True
- 345. False
- 346. True
- 347. True
- 348. False
- 349. True
- 350. True
- 351. False
- 352. True
- 353. False
- 354. True
- 355. False
- 356. True
- 357. False
- 358. True
- 359. False
- 360. False
- 361. True
- 362. True
- 363. False
- 364. False
- 365. True

- 366. False
- 367. True
- 368. True
- 369. True
- 370. False
- 371. True
- 372. True
- 373. True
- 374. Volt-Amperes
- 375. Two
- 376. Blue
- 377. Pink
- 378. 60
- 379. Clear transparent
- 380. Buchholtz relay
- 381. Black
- 382. c
- 383. c
- 384. a
- 385. MORG
- 386. b
- 387. Copper loss
- 388. Iron loss
- 389. Voltage ratio(Transformation ratio)
- 390. Secondary side current
- 391. ppm
- 392. 10
- 393. 400MΩ
- 394. 2000 MΩ
- 395. 2500 MΩ
- 396. 15
- 397. 50
- 398. 5
- 399. 100
- 400. 80
- 401. 85
- 402. 90
- 403. 95
- 404. off load
- 405. Turn Ratio (Transformation Ratio)
- 406. a
- 407. c
- 408. a
- 409. a
- 410. c
- 411. b

- 412. a
- 413. 0.007
- 414. 110
- 415. d
- 416. d
- 417. b
- 418. b
- 419. a
- 420. c
- 421. b
- 422. d
- 423. a
- 424. d
- 425. b
- 426. c
- 427. a
- 428. gases
- 429. c
- 430. b
- 431. false
- 432. d
- 433. c
- 434. d
- 435. False
- 436. c
- 437. d
- 438. b
- 439. a
- 440. 2.5
- 441. a
- 442. True
- 443. c
- 444. Yes
- 445. Yes
- 446. False
- 447. False
- 448. True
- 449. True
- 450. False
- 451. True
- 452. False
- 453. True
- 454. true
- 455. True
- 456. False
- 457. False

- 458. False
- 459. True
- 460. False
- 461. True
- 462. False
- 463. True
- 464. True
- 465. False
- 466. True
- 467. True
- 468. False
- 469. True
- 470. True
- 471. True
- 472. False
- 473. True
- 474. True
- 475. False
- 476. True
- 477. False
- 478. True
- 479. False
- 480. False
- 481. Sector
- 482. Sub-Sector
- 483. Elementry section
- 484. CB
- 485. Isolator
- 486. DPI
- 487. d
- 488. 500mm
- 489. SM
- 490. d
- 491. d
- 492. e
- 493. 5.5 Kg/cm²
- 494. 4.5 Kg/cm²
- 495. 4.0 Kg/cm²
- 496. Gas Density switch
- 497. c
- 498. Gas Density switch
- 499. 15 Kg/cm²
- 500. 13 Kg/cm²
- 501. 12 Kg/cm²
- 502. b
- 503. Safety Valve

504. 20
505. True
506. False
507. True
508. True
509. True
510. True
511. False
512. True
513. True
514. True
515. False
516. True
517. True
518. True
519. True
520. True
521. False
522. 0.5Ω
523. 2.0Ω
524. 2.0Ω
525. 10.0Ω
526. 0
527. 4
528. 4
529. 6
530. False
531. True
532. True
533. True
534. Parallel
535. True
536. a
537. 42kv
538. 98kv
539. 120kv
540. 198kv
541. d
542. True
543. Megger
544. False
545. True
546. False
547. $1G\Omega$
548. $10G\Omega$
549. True

- 550. False
- 551. 3.80mts
- 552. 110
- 553. c
- 554. a
- 555. d
- 556. a
- 557. b
- 558. a
- 559. c
- 560. d
- 561. d
- 562. d
- 563. True
- 564. d
- 565. d
- 566. a
- 567. a
- 568. c
- 569. b
- 570. True
- 571. False
- 572. c
- 573. False
- 574. True
- 575. d
- 576. c
- 577. b
- 578. d
- 579. False
- 580. True
- 581. d
- 582. Yes
- 583. 25kv/100 volts
- 584. 25kv/110 volts
- 585. 10
- 586. 25kv/230 volts
- 587. 10
- 588. 2
- 589. c
- 590. 25kv/100 volts
- 591. 1 amp.
- 592. 63 amp
- 593. 200 MΩ
- 594. 2 MΩ
- 595. 200 MΩ

- 596. 200 MΩ
- 597. 2 MΩ
- 598. 200 MΩ
- 599. 200 MΩ
- 600. 2 MΩ
- 601. 200 MΩ
- 602. Less
- 603. More
- 604. c
- 605. c
- 606. Route Indicator/ Cable Marker
- 607. d
- 608. c
- 609. True
- 610. b
- 611. False
- 612. True
- 613. True
- 614. AT
- 615. NO
- 616. True
- 617. False
- 618. True
- 619. b
- 620. a
- 621. d
- 622. c

कर्षण वितरण वस्तुनिष्ठ प्रश्न

1. TRD का विस्तारित नाम ----- है।
2. दो डिस्चार्जर रॉड लगाए जाने की अधिकतम दूरी ----- मीटर से अधिक नहीं होनी चाहिए।
3. डिस्चार्ज रॉड प्रायः कार्य स्थल से अधिक से अधिक दूरी पर लगाना चाहिए।
(सही/गलत)
4. डिस्चार्ज रॉड लगाने से पूर्व उसे RT से सम्पर्क करा कर सप्लाइ बंद होने की पुष्टी करना अनिवार्य है। (सही/गलत)
5. PTW का तात्पर्य =-----है।
6. एक मीटर में ----- mm होते हैं।
7. रेल्वे का ब्रॉड गेज -----mm होता है।
8. ओएचई वोल्टेज SP के पास----- से कम नहीं होना चाहिए।
9. डिस्चार्जर रॉड के केबल का साईज ?
10. 25 KV/AC ओ.एच.ई. से सुरक्षित दूरी ? _____
11. DJ ओपन कॉशन बोर्ड N/S समाप्त होने के बाद लगाया जाता है।(सही/गलत)
12. हाईट गेज कि ऊंचाई ? _____
13. हाईट गेज कहाँ लगाया जाता है?
14. हाईट गेज पर लगने वाला कॉशन बोर्ड?
 अ) कोई कॉशन बोर्ड नहीं लगता। ब) खतरा बोर्ड। स)
 पावर ब्लॉक वर्किंग लिमिट बोर्ड। द) सावधान इलेक्ट्रीफायड सेक्शन।
15. दो एलिमेंट्री सेक्शनो के लिए सावधनी बोर्ड कौन सा है ? नाम लिखें ।
16. पावर ब्लॉक में डिजल लोको जा सकता है ?
17. TI/MI निर्देश RDSO लखनऊ द्वारा जारी किए जाते हैं ?
18. डिस्चार्जर रॉड यह एक सेफ्टी आयटम है ? सही / गलत लिखें ।
19. विद्युत आग बुझाने के लिए कौन सा अग्निशमन यंत्र उपयोगी है?
20. एलिमेंट्री सेक्शन का IR वैल्यू मान कितना होना चाहिए ?
21. ट्रक प्रोटेक्शन के लिए G & SR नियम ----- है।
22. डेटोनेटर की आयु ----- साल होती है।
23. ACTM का तात्पर्य है -
24. 1 टन = ----- कि.ग्रा.
25. भारी वजन तथा तनाव को सहने के लिए किस टूल का उपयोग किया जाता है ?

- अ) डिस्चार्ज रॉड ब) टरफर स) ग्रीसगन द) पावर हैक-शॉ
26. पुल-लिफ्ट किस काम आता है?
 अ) OHE को अर्थ करने के लिए। ब) ATD का POH करने के लिए।
 स) कॉन्टेक्ट वायर का वजन सहने के लिए। द) उपरोक्त में से कोई नहीं।
27. OHE तार को मजबूती से पकड़ने के लिए किस टूल का उपयोग होगा?
 अ) कम-अलॉग क्लैम्प ब) टरफर स) पुल-लिफ्ट द) रस्सा-कप्पा
28. 25KV सिस्टम के लिए ईलेक्ट्रीकल क्लीयरेंस का मान वर्किंग क्लीयरेंस से अधिक होता है। (सही/गलत)
29. OHE लाईन मैन के पास ----- योग्यता प्रमाण पत्र होना चाहिए।
30. सुपर एलिवेशन क्या है?
 अ) सुपर मास्ट की लम्बाई।
 ब) 9.5 मीटर से अधिक लम्बे मास्ट को कहते हैं।
 स) गोलाई में बाहरी रेल का अन्दर की रेल से ऊंचा होना।
 द) टर्न आउट पर कॉन्टेक्ट वायर की ऊंचाई की भिन्नता।
31. सभी FOB, ROB पर लगाया जाने वाला कॉशन बोर्ड ?
 अ) सावधान 2500 वोल्ट। ब) DJ ओपन बोर्ड
 स) पैन्टो लोअर बोर्ड द) डेन्जर मेन वर्किंग।
32. जहां डेड -एण्ड पर OHE समाप्त हो रही हो वहां लगाया जाने वाला कॉशन बोर्ड ?
 अ) कॉशन OHE अहेड ईज़ अलाईव। ब) रेस्ट्रिक्टेड क्लियरेंस।
 स) इलेक्ट्रिक ईजन स्टॉप । द) अन वायरड टर्न-आउट।
33. TSS से SP तक के खण्ड को ----- कहते हैं।
34. SSP से SP तक के खण्ड को ----- कहा जायेगा।
35. TSS से SSP तक के खण्ड को क्या कहेंगे ? -----
36. ACTM के अनुसार CB द्वारा जिस खण्ड की सप्लाई नियंत्रित होती है उसे----- कहा जायेगा।
37. ACTM के अनुसार BM द्वारा जिस खण्ड की सप्लाई नियंत्रित होती है उसे----- कहा जायेगा।
38. इनमें से किसके द्वारा एलीमेन्ट्री सेक्शन की सप्लाई नियंत्रित की जाती है?
 अ) CB ब) BM स) ऑफ लोड हैण्ड ऑपरेटेड स्विच द) BX
39. सेक्शनिंग डायग्राम में जिसे परस्पर भिन्न रंगों से दर्शाया जाता है
 अ) सेक्टर ब) सब- सेक्टर
 स) एलीमेन्ट्री सेक्शन द) उपरोक्त में से कोई नहीं

40. ACTM के अनुसार आग को कितने वर्गों में बांटा गया है ?
41. ज्वलनशील द्रव जैसे ट्रांसफॉर्मर ऑयल को किस वर्ग में रखा जायेगा?
42. चार साल पर किया जाने वाला अनुरक्षण ?
अ) AOH ब) IOH स) POH द) उपरोक्त में से कोई नहीं।
43. 12 महीने पर किया जाने वाला अनुरक्षण ?
अ) AOH ब) IOH स) POH द) उपरोक्त में से कोई नहीं।
44. OHE का पैदल गस्त 10 या 15 दिन में लाईन मैन द्वारा किया जाता है।
(सही / गलत)
45. अन रेग्युलेटेड OHE का री-टेन्शनिंग-----साल पर किया जाता है।
46. OHE का स्पेशल-चेक करने की अवधि ?
अ) 15 दिन ब) 45 दिन स) 5 साल
द) अधिक उपयोग होने वाले उपस्करों को AOH के अतिरिक्त दो तीन बार जांच करते हैं।
47. ओलीवर जी का उपयोग किस कार्य के लिए किया जाता है ?
अ) OHE की मोटाई नापने के लिए ब) OHE का सैग जांचने के लिए।
स) OHE हाईट तथा स्टेगर नापने के लिए। द) उपरोक्त में से कोई नहीं।
48. ओलीवर-जी का उपयोग करंट कलेक्शन टेस्ट के लिए किया जाता है।(सही/गलत)
49. ओलीवर-जी का उपयोग दिन के समय ही किया जा सकता है।(सही/गलत)
50. करंट कलेक्शन टेस्ट के लिए ओलीवर-जी का उपयोग क्यों बेहतर है?
अ) इसे दिन और रात दोनों समय उपयोग कर सकते हैं।
ब) इसके लिए कर्मचारी की आवश्यकता नहीं है।
स) इससे स्पार्क लोकेशन बहुत सटीकता से पहचाना जाता है।
द) क्यों की यह नयी तकनीक है और नयी चीज़ अच्छी होती है।
51. ट्रैक-सेन्टर से मास्ट की सतह की दूरी को ----- कहते हैं।
52. अपोजिट गैन्ट्री मास्ट का इम्प्लान्टेशन ----- मीटर से कम नहीं रखा जाता।
53. N - टाईप पोर्टल का क्लिअर स्पेन _____ मिटर होता है ?
54. O टाईप पोर्टल का क्लिअर स्पेन _____ मिटर होता है ?
55. R - टाईप पोर्टल का क्लिअर स्पेन _____ मिटर होता है ?
56. BFB मास्ट 6 इंच X 6 इंच का mm में परिवर्तन क्या होगा ?
57. नॉर्मल ड्रॉप आर्म की लंबाई ?_____
58. TTC मास्ट के बूम के प्रकार कितने हैं ? और उनकी लंबाईयाँ लिखिए।
59. ऑब्लिगेट्री स्ट्रक्चर का इम्प्लान्टेशन ?

60. स्टैण्डर्ड स्पैन की अधिकतम मानक दुरी ?
61. प्लेट फ़ार्म पर न्यूनतम इम्प्लानटेशन ?
62. TTC का किलअर स्पैन कितना होता है?
63. लिनिंग मास्ट को ----- रंग का मार्किंग किया जाता है।
64. लोकेशन पर यदि दो या इससे अधिक एलिमेंट्री सेक्शन हैं तो मास्ट पर ----
----- रंग का बॅन्ड लगाया जाता है।
65. इंप्लांटेशन को सेटींग डिस्टेन्स भी कहते हैं ? सही या गलत ।
66. मास्ट यदि सीधा खड़ा न हो बल्की किसी दिशा में झुका हो उसे-----कहते हैं।
67. मास्ट लीनिंग है इसका पता लगाने के लिए किसका प्रयोग करते हैं?
अ) मेज़रिंग टेप/पल्म बॉब ब) पल्म बॉब/ बाइनाकुलर
स) बाइनाकुलर/ मेज़रिंग टेप द) स्प्रिट लेवल
68. लिनिंग मास्ट ----- तक अनुमेय है।
69. रिव्हर्स डिफ़्लेक्शन ----- से संबंधित है।
70. रिव्हर्स डिफ़्लेक्शन ----- तक रखा जाता है।
71. न्यूनतम इंप्लानटेशन ? -----
72. नये मापदंडों के अनुसार सामान्य इंप्लानटेशन? -----
73. न्यूनतम स्पान लेन्थ ? -----
74. अगल-बगल के स्पान की लम्बाई का अन्तर ----- मीटर से अधिक नहीं होना चाहिए।
75. मास्ट इंप्लानटेशन में टॉलरेन्स ?-----
76. स्टैण्डर्ड स्पान उन्हें कहते हैं जो ----- मीटर के गुणक हैं?
77. नॉन स्टैण्डर्ड स्पान उन्हें कहते हैं जो ----- मीटर के गुणक नहीं हैं?
78. स्पान लेन्थ 54 मीटर, नॉन स्टैण्डर्ड स्पान है। (सही/ गलत)
79. N टाईप पोर्टल अधिकतम ----- ट्रैक की OHE के लिए उपयुक्त है।
80. O टाईप पोर्टल अधिकतम ----- ट्रैक की OHE के लिए उपयुक्त है।
81. R टाईप पोर्टल अधिकतम----- ट्रैक की OHE के लिए उपयुक्त है।
82. P टाईप पोर्टल किसके स्थान पर लगाया जाता है?
अ) N टाईप पोर्टल ब) O टाईप पोर्टल स) R टाईप पोर्टल द) BFB पोर्टल
83. G टाईप पोर्टल किसके स्थान पर लगाया जाता है?
अ) N टाईप पोर्टल ब) O टाईप पोर्टल स) R टाईप पोर्टल द) BFB पोर्टल
84. N टाइप पोर्टल के अप राइट की साईज़ ?
अ) 450X450 mm ब) 550X550 mm

- स) 600X600 mm द) 400X400 mm
85. टाइप पोर्टल के अप राईट की साईज़ ?
 अ) 450X450 mm ब) 550X550 mm
 स) 600X600 mm द) 400X400 mm
86. R टाइप पोर्टल के अप राईट की साईज़ ?
 अ) 450X450 mm ब) 550X550 mm
 स) 600X600 mm द) 400X400 mm
87. P टाइप पोर्टल के अप-राईट की साईज़?
 अ) 450X450 mm ब) 550X550 mm
 स) 600X600 mm द) 300X300 mm
88. G टाइप पोर्टल के अप-राईट की साईज़?
 अ) 450X450 mm ब) 550X550 mm
 स) 600X600 mm द) 250X400 mm
89. BFB मास्ट की साईज़ ? -----
90. RSJ मास्ट की साईज़ ? -----
91. B सीरीज़ मास्ट के विभिन्न साइज़ लिखें ।(कोई तीन)-----
92. B-150 मास्ट की साईज़ ? -----
93. OHE मास्ट की लम्बाई ----- मीटर होती है।
94. मास्ट का -----मि.मी. हिस्सा फाउन्डेशन के अन्दर होना चाहिए।
95. फैब्रीकेटेड मास्ट की चैनल वाली सतह रेल-पथ के समानान्तर रहनी चाहिए।
 (सही/ गलत)
96. फैब्रीकेटेड मास्ट की चैनल वाली सतह रेल-पथ के लम्बवत रहनी चाहिए।
 (सही/ गलत)
97. BFB तथा RSJ मास्ट की कोई भी सतह रेल-पथ के सामानान्तर या लम्बवत रखी जा सकती है। (सही /गलत)
98. सीमेन्ट-कंक्रीट मास्ट को PSC मास्ट कहते हैं।(सही/गलत)
99. आउट साईड कर्व में न्युनतम ईप्लानटेशन ? -----
100. इन-साईड कर्व में न्युनतम ईप्लानटेशन ? -----
101. जब कोई मास्ट गोलाई के केन्द्र की तरफ लगा होता है तब उसे इन साईड कर्व कहते हैं। (सही/गलत)
102. जब कोई मास्ट गोलाई के केन्द्र से विपरीत दिशा में लगा होता है तब उसे आउट साईड कर्व कहते हैं। (सही/गलत)

103. गोलाई में स्पान लेन्थ का चुनाव कॉन्टेक्ट-वायर स्टैगर पर निर्भर नहीं करता है।(सही/गलत)
104. कर्व अलाउन्स शब्द का संबंध इनमें से किसके साथ है?
अ) मास्ट की लम्बाई ब) इंकम्ब्रेन्स स) स्टैगर द) ईप्लानटेशन
105. कर्व अलाउन्स को ईप्लानटेशन के सामान्य मान से घटाया जाता है।(सही/गलत)
106. अलग-अलग गोलाई में (गोलाई का कम या अधिक होना) ईप्लानटेशन का मान अलग-अलग होता है। (सही/गलत)
107. ट्राम-वे टाईप रेग्युलेटेड OHE के लिए अधिकतम स्पान लेन्थ-----
108. ट्राम वे टाईप अन-रेग्युलेटेड OHE के लिए अधिकतम स्पान लेन्थ-----
109. ट्राम-वे टाईप OHE के लिए 8.5मीटर लम्बे मास्ट का प्रयोग किया जाता है।
(सही/गलत)
110. TT,BT, & 9 टन इत्यादि सभी इन्सुलेटरों, उनके एक कॅप से दुसरी कॅप तक कि सतह की लंबाई को -----कहलाते है।
111. सामान्य तथा अधिक प्रदूषण क्षेत्र में प्रयोग होने वाले इंसुलेटरों में क्या भिन्नता होती है?
अ) कोई भिन्नता नहीं होती। ब) लोड सहने की क्षमता।
स) डिज़ाइन द) क्रीपेज़ डिस्टेन्स
112. अधिक प्रदूषण क्षेत्र में लॉग-क्रीपेज़ डिस्टेन्स के इंसुलेटर लगाये जाते हैं।
(सही/गलत)
113. लॉग क्रीपेज़ डिस्टेन्स -
अ) 2000 mm ब) 1000mm स)1050 mm द) 760 mm
114. OHE में प्रयोग होने वाले इंसुलेटर किस पदार्थ के बने होते हैं?
115. ----- पेटिकोट टुट जानेपर इन्सुलेटर को बदल देना चाहिए।
116. 9टन इंसुलेटर को लगाने से पहले क्या उस पर कोई परिक्षण किया जाता है?
(हां / नहीं)
117. TT , BT तथा 9 टन इंसुलेटर को लगाने से पूर्व उन पर किया जाने वाला परिक्षण
अ) लोड - टेस्ट ब) IR टेस्ट स) PI टेस्ट द) कोई टेस्ट नहीं
118. प्रदूषित क्षेत्रों में सभी इन्सुलेटर की विशेषता क्या होनि चाहिए ?_____
119. हाइब्रिड इन्सुलेटर के पेटिकोट का इन्सुलेटींग मटेरियल कौन सा होता है ।
120. 9 टन इंसुलेटर का टेस्टिंग लोड? -----
121. ST तथा BT इंसुलेटर का टेस्टिंग लोड? -----
122. इनमें से क्या एक इंसुलेटर का प्रकार नहीं है?

- अ) ब्रैकेट इंसुलेटर ब) स्टे इंसुलेटर स) 9 टन ईंसुलेटर
 द) पेडस्टल इंसुलेटर ह) टाई रॉड इंसुलेटर क) PTFE
 ख) उपरोक्त में से कोई नहीं
123. AOH के दौरान की जाने वाली कार्यवाही ?
 अ) इंसुलेटर की साफ सफाई ।
 ब) टूट फूट की जांच तथा आवश्यकतानुसार ईंसुलेटर बदलना।
 स) मेक तथा बैच नोट करना। द) उपरोक्त सभी।
124. किसी इंसुलेटर में कौन-कौन से दोष हो सकते हैं?
 1. पोर्सीलीन की सतह पर गंदगी 2. टूटे शेड 3. क्रैक
 4. प्रतिबंधित मेक/बैच 5. फ्लैश 6. ढीला GI कैप
 अ) 1,3,5 ब) 2,4,6
 स) 1,2,3,5,6 द) उपरोक्त सभी।
125. रबर के दस्ताने ----- के लिए आवश्यक होते हैं।
126. आयसोलेटर SS/216 से नियंत्रित एलिमेंट्री शेक्शन का नम्बर क्या है ?
 अ) कुछ भी हो सकता है। ब) 21600
 स) X-216 द) SS-216
127. ओपन आयसोलेटर के कॉन्टेक्टों के बीच क्लियरेन्स ?
128. आयसोलेटर यह एक ऑफ लोड स्विच है ? सही / गलत लिखें।
129. किसी स्टेशन पर लगे सभी आइसोलेटरों की चाभी स्टेशन मास्टर के पास की-बॉक्स में रखी जाती है। (सही/गलत)
130. मेन लाईन की OHE से जुड़े आइसोलेटर की संख्या के पहले ----- लिखा होता है।
131. यार्ड OHE में लगे आइसोलेटर की संख्या के पहले ----- लिखा होता है।
132. आइसोलेटर प्रचालन के लिए योग्यता प्रमाण-पत्र होना चाहिए। (सही/गलत)
133. आइसोलेटर के संबंध में ऑफ-लोड शब्द का अर्थ क्या है ?
 अ यार्ड में लगा आइसोलेटर।
 ब आइसोलेटर का अनुरक्षण किया जा सकता है।
 स आइसोलेटर से करंट का न बहना।
 द. आइसोलेटर का प्रचालन बिना किसी प्रयास के हो जाना।
134. आइसोलेटर पर लगे आर्किंग हॉर्न का उद्देश्य -
 अ) पक्षियों को भगाना जिससे की कॉन्टेक्ट पर गंदगी न हो।
 ब) हाई वोल्टेज से सुरक्षा।
 स) प्रचालन के दौरान मेन कॉन्टेक्ट को स्पाकिंग से सुरक्षा।

- द) आइसोलेटर की क्लोज अवस्था में मेन कॉन्टेक्ट को लॉक रखना।

 135. आइसोलेटर के संबंध प्रायः पोल शब्द का क्या अर्थ है ?
अ) फेज की संख्या। ब) पेडस्टल इंसुलेटर्स की संख्या।
स) फिक्स - मूविंग कॉन्टेक्ट के बीच का क्लीयेरेंस।
द) उपरोक्त में से कोई नहीं।
 136. 25KV OHE में प्रायः ----- एम्पियर क्षमता तथा स्विचिंग स्टेशनों में प्रायः
----- एम्पीयर क्षमता का आइसोलेटर लगा होता है।
 137. आइसोलेटर के अनुरक्षण के दौरान फिक्स तथा मूविंग कॉन्टेक्ट को एक जम्पर द्वारा शॉर्ट कर लेना चाहिए। (सही /गलत)
 138. अर्थिंग-हील आइसोलेटर का मतलब ?
अ) आइसोलेटर मास्ट को अर्थ इलेक्ट्रोड से जोड़ा गया है।
ब) आइसोलेटर के हैंडल तथा मास्ट को जम्पर से जोड़ा गया है।
स) आइसोलेटर में दो मूविंग कॉन्टेक्ट हैं।
द) आइसोलेटर OHE खण्ड को आइसोलेट करने के साथ-साथ अर्थ भी करता है।
 139. आइसोलेटर मास्ट को उस अवस्था में अर्थ इलेक्ट्रोड से जोड़ा जायेगा यदि उसकी ड्रुलीकेट बाँझिंग न की गई हो।(सही/ गलत)
 140. SS रोप को _____ ऑयल में ट्रिटमेंट देते हैं।
 141. विंच ATD का SS रोप ____ मीटर लंबाई का होता है।
 142. 3 पुल्ली ATD का SS रोप ____ मीटर लंबाई का होता है।
 143. ट्राम- वे OHE में विंच ATD का SS रोप __ मीटर लंबाई का होता है।
 144. ट्राम- वे OHE में 3 पुल्ली ATD का SS रोप _ मीटर लंबाई का होता है।
 145. ट्राम - वे OHE में विंच ATD के लिए काउंटर वेट _____kg होता है।
 146. ट्राम - वे OHE में 3 पुल्ली ATD के लिए काउंटर वेट _____kg होता है।
 147. विंच प्रकार कि ATD का यांत्रिक लाभ का अनुपात कितना है ?
 148. 35 °C तापमान पर विंच ATD का Y मान कितना होना चाहिए ?
 149. तापमान बढ़नेसे X वैल्यू बढ़ता है और Y वैल्यू कम हो जाता है ? सही /गलत.
 150. विंच टाईप ATD का यांत्रिक लाभ ?
 151. श्री पुल्ली ATD का यांत्रिक लाभ ?
 152. विंच टाईप तथा श्री पुली ATD में कौन बेहतर है और क्यों?
 153. ATD का संबंध किससे है?
अ) 35 °C ब) 27 °C स) 20 °C द) 30 °C
 154. POH के दौरान SS रोप विपरीत दिशा से लगाना चाहिए। (सही/गलत)

155. TI/MI 0028 में अनुरक्षण का विषय क्या है ?
 156. इंसुलेटेड ओव्हरलैप में दो OHE के बिच क्लिअरेंस ? _____
 157. ऑब्लिगेट्री स्ट्रक्चरों के लोकेशनों का सेटिंग डिस्टेंस ? _____
 158. अन इंसुलेटेड O/L में दो OHE के बिच क्लिअरेंस कितन होना चाहिए ?
 159. इनमें से क्या टर्न-आउट का प्रकार नहीं है?
 1) PTFE टाईप 2) रेग्युलेटेड टाईप
 3) सेमी-रेग्युलेटेड टाईप 4) क्रॉस टाईप
 अ) 4,2 ब) 3, 4 स) 1,2,3 द) 4,1
 160. ओवर लैप टाईप टर्न-आउट मे क्रॉसिंग स्पान की लम्बाई-----मीटर से अधिक नही होनी चाहिए।
 161. नॉर्मल इन्कब्रन्स कितना रखा जाता है ?
 162. ड्रॉप ब्रेकेट क्लैम्प के साथ स्टडी क्लिअरेंस कितना रखते हैं ?
 163. टॉप फ़ीटींग और बॉटम फ़ीटींग के बिच नॉर्मल दूरी ?
 164. प्लेट फ़ार्म लोकेशन के लिए ब्रेकेट ट्यूब का साइज क्या है ?
 165. सपोर्ट पर कैटनरी तथा कॉन्टेक्ट वायर के बीच की खड़ी दूरी को कहते हैं?
 166. न्यूनतम ईक्मब्रेन्स ? -----
 167. BFB स्टडी आर्म का साइज क्या है ?
 168. G जम्पर की सपोर्ट से दूरी ?
 169. पी जी क्लैम्प का रिप्लेसमेंट अवधी कितना रखा गया है ?
 170. G जंपर लगाने के लिए कितने PG क्लैम्प लगाए जाते हैं ?
 171. स्टर्कर बॉन्ड का क्रॉस सेक्शन साइज क्या है ?
 172. Z - बॉन्ड ट्रंक सर्किट के समीप लगाते हैं । (सही/गलत)
 173. मेन लाइन पर दो क्रॉस बॉन्ड के बिच दूरियाँ ?
 174. स्टर्कर बॉन्ड पट्टी का क्रॉस सेक्शन -----से कम नही चाहिए ।
 175. PTFE N/S SSP ओव्हरलैप में होता है ? (सही / गलत)
 176. शॉर्ट PTFE न्यूट्रल सेक्शन कि लंबाई कितनी होती है ?
 177. न्यूट्रल सेक्शन के संबंध मे असत्य कथन?
 अ) दो फेज़ की सप्लाई को एक दूसरे से अलग रखता है।
 ब) AC ईजन बिना सप्लाई लिये अपनी गती से इसे पास करता है।
 स) SP नामक स्विचिंग स्टेशन के सापेक्ष बनाया जाता है।
 द) पावर फैक्टर अच्छा करता है।
 ह) उपरोक्त मे से कोई नहीं।

178. निम्न में से किसके लिए अर्थ पिट नहीं बनाया जाता?
 अ) आइसोलेटर ब) PTFE न्यूट्रल सेक्शन
 स) ओवर लाईन स्ट्रक्चर द) ओवर लैप टाईप न्यूट्रल सेक्शन

179. PTFE न्यूट्रल सेक्शन का स्टॅंगर ----- रखा जात है ।
 अ) 0 ब) + 100 mm
 स) -100 mm द) +/- 200 mm

180. ओव्हर लैप टाईप न्यूट्रल सेक्शन का स्टॅंगर ----- रखा जात है ।

181. PTFE न्यूट्रल सेक्शन का स्टॅंगर ----- रखा जात है ।
 अ) 0 ब) + 100 mm
 स) -100 mm द) +/- 200 mm

182. प्रत्येक न्यूट्रल सेक्शन को ----- कॉशन बोर्ड लगाए जाते हैं ।
 अ) 4 ब) 2
 स) 6 द) 3

183. सेक्शन इंसुलेटर का नॉर्मल स्टॅंगर ? _____

184. सेक्शन इंसुलेटर का नॉर्मल इन्कब्रन्स कितना रखा जाता है ?

185. सेक्शन इंसुलेटर के ट्रेलिंग साईड में रनर और OHE क्लिअरेंस कितना रखा जाता है ?

186. सेक्शन इंसुलेटर के रनर की साईज ?

187. सभी स्थितियों में सेक्शन इंसुलेटर के साथ गती-सीमा 80KMPH होती है। (सही/गलत)

188. रेग्युलेटेड OHE कि टेंशन लेंथ ? _____

189. रेग्युलेटेड OHE कि एंकर हाईट ? _____

190. कैंटनरी का क्रॉस सेक्शन कितना होता है ? _____

191. करंट कलेक्शन टेस्ट में क्या चेक किया जाता है ?

192. ओएचई की करंट वहन क्षमता कितनी है ?

193. अन-रेग्युलेटेड OHE की एंकरिंग हाईट ?

194. लोको शेड में OHE की न्यूनतम ऊंचाई ?

195. रेग्युलेटेड ओएचई में दो C जंपरों के बिच कि दुरी कितनी होती है ?

196. रेग्युलेटेड ओएचई कि अधिकतम तनन लंबाई कितनी होती है ?

197. ओव्हर लाईन स्ट्रक्चर के निचे 25 KV OHE क्लिअरेंस ?

198. ब्रीडल वायर ----- ओएचई में लगाया जाता है।

199. रिजिड डॉपर मेन लाईन पर लगाया जाता है ? सही या गलत लिखें

200. करंट कलेक्शन टेस्ट यह 3 माह मे एक बार किया जाता है ?
201. OHE हाईट में टॉलरेन्स ? -----
202. क्या न्यूनतम हाईट तथा इन्प्लानटेशन में भी टॉलरेन्स लागू है?
203. सामान्य स्थिती मे कॉन्टेक्ट वायर पार्ट होने की संभावना कहां होती है?
अ) ACC ब) RRA स) FTA द) BWA
204. एडजस्टेबल ड्रॉपर का प्रयोग कहां होता है?
अ) ATD ब) RRA स) सेक्शन ईसुलेटर द) ACA
205. कॉन्टेक्ट एन्डिंग क्लैम्प का प्रयोग कहां नहीं होता?
अ) BWA ब) FTA स) ACA द) उपरोक्त मे से कोई नहीं
206. नये कॉन्टेक्ट वायर का क्रॉस-सेक्शन क्षेत्रफल ----- वर्ग मिमी.।
207. नये कॉन्टेक्ट वायर का व्यास ? -----
208. मेन लाईन पर कॉन्टेक्ट वायर का कन्डम व्यास ? -----
209. यार्ड लाइनो पर कॉन्टेक्ट वायर का कन्डम व्यास ? -----

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210. विद्युत धारा नापने की ईकाइ -----।
211. विद्युत विभव नापने की ईकाइ -----।
212. प्रतिरोध नापने की ईकाइ -----।
213. एम्पीयर -----नापने की ईकाइ है।
214. वोल्ट -----नापने की ईकाइ है।
215. ओहम ----- नापने की ईकाइ है।
216. अमीटर से ----- नापते हैं।
217. वोल्ट मीटर से ----- नापते हैं।
218. ओहम मीटर से ----- नापते हैं।
219. मल्टीमीटर से ----- नापते हैं।
220. इंसुलेशन रजिस्टेन्स नापने की ईकाइ----- है।
221. इंसुलेशन रजिस्टेन्स नापने का उपकरण ----- कहलाता है।
222. मेगर द्वारा ----- नापते हैं।
223. मेगा ओहम -----नापने की ईकाइ है।
224. एक मेगा ओहम = ----- ओहम।
225. अमीटर परिपथ में ----- में जोडा जाता है।

226. वोल्ट मीटर परिपथ में ----- में जोड़ा जाता है।
227. 1 किलो मीटर = ----- मीटर।
228. 1 मीटर = ----- से.मी.।
229. 1 सेन्टीमीटर = ----- मिली मीटर।
230. 1 फुट = ----- इंच।
231. 1 इंच = ----- सेन्टीमीटर।
232. विद्युत ऊर्जा के खपत की ईकाइ ----- है।
233. विद्युत शक्ति की ईकाइ ----- है।
234. हॉर्स-पावर ----- की ईकाइ है।
235. किलोग्राम-मीटर प्रती सेकण्ड ----- की ईकाइ है।
236. 1 हॉर्स-पावर = -----वाट।
237. -----सर्किट द्वारा AC सप्लाई को DC में बदला जाता है।
238. DC सप्लाई को AC में बदलने वाले उपकरण का नाम -----।
239. पावर फैक्टर का आदर्श मान -----।
240. 0.80 की तुलना में पावर फैक्टर का कॉन सा मान बेहतर है। (8.0, 0.88)
241. 25KV OHE का वोल्टेज -----KV से अधिक नहीं होना चाहिए।
242. 25KV OHE का वोल्टेज किसी भी स्थान पर --KV से कम नहीं होना चाहिए।
243. इंसुलेशन रजिस्टेन्स का आदर्श मान ----- ।
244. 25 केवी सिस्टम के लिए वर्किंग क्लीयरेंस ----- मी.।
245. किसी वस्तु का उपर से देख कर बनाया गया रेखा चित्र ----- कहलाता है।
246. किसी वस्तु का सामने से देख कर बनाया गया रेखा चित्र ----- कहलाता है।
247. रेखा चित्र द्वारा किसी वस्तु की पूर्ण जानकारी प्राप्त करने के लिए -
 अ) प्लान पर्याप्त है। ब) प्लान तथा एलीवेशन पर्याप्त हैं।
 स) प्लान ,एलीवेश तथा एण्ड व्यु तीनों का होना अनिवार्य है।
 द) उपरोक्त में से कोई नहीं।
248. ओहम के नियम के अनुसार निम्न में से कौन सा संबंध गलत है ?
 अ) $I = \frac{V}{R}$ ब) $R = \frac{V}{I}$ स) $V = I \times R$ द) $V = \frac{I}{R}$
249. किस प्रकार के पदार्थ को तापमान की श्रेणियों में बांटा गया है ?
 अ) चालक ब) विद्युतरोधी स) अर्धचालक द) चुम्बकीय
250. किसी परिपथ के सीरीज़ कनेक्शन में होने पर निम्न में से असत्य कथन ?
 अ) परिपथ के सभी प्रतिरोधों में बहने वाली धारा एक समान होगी।

- ब) परिपथ के सभी प्रतिरोधों में बहने वाली धारा एक समान होगी किन्तु वोल्टेज ड्रॉप प्रतिरोध में मान के अनुसार होगा।
स) परिपथ के अलग-अलग बिंदुओं पर धारा का मान अलग-अलग होगा।
द) परिपथ में बहने वाली धारा परिपथ के कुल प्रतिरोध पर निर्भर करेगी।
251. ओहम के नियम के संबंध में असत्य कथन -
अ) किसी बंद परिपथ में वोल्टेज, करंट तथा रजिस्टेन्स का आपसी संबंध बताता है।
ब) बहने वाली धारा लगाये गये वोल्टेज के समानुपाती होती है।
स) बहने वाली धारा परिपथ के प्रतिरोध के विलोमानुपाती होती है।
द) तापमान का स्थिर होना अनिवार्य नहीं है।
252. किसी चुम्बक को स्वतंत्रापूर्वक लटकाने पर वह सदैव ----- दिशा में ठहरता है।
253. चुम्बक के ध्रुवों को प्रायः किस नाम से जानते हैं-
अ) उत्तर-दक्षिण
ब) पूर्व-पश्चिम
स) EMF-MMF
द) अप-डाउन
254. प्राकृतिक चुम्बक के संदर्भ में कौन सा कथन असत्य है-
अ) गर्म करने से चुम्बकत्व नष्ट होता है।
ब) समान ध्रुव प्रतिकर्षित करते हैं तथा विपरीत आकर्षित।
स) चुम्बक सभी धातुओं को आकर्षित करते हैं।
द) चुम्बक का प्रत्येक टुकड़ा एक पूर्ण चुम्बक होता है।
255. जब लोहे के टुकड़े पर तार लपेट कर तार में धारा बहाई जाती है तब वह लोहे का टुकड़ा बन जाता है-
अ) प्राकृतिक चुम्बक
ब) विद्युत चुम्बक
स) स्टील
द) माईल्ड स्टील
256. विद्युत-चुम्बक, प्राकृतिक-चुम्बक से किस प्रकार भिन्न है?
अ) इसमें ध्रुवों की संख्या स्वेच्छानुसार बनाई जा सकती है।
ब) इसमें चुम्बकीय बल-रेखाओं की दिशा उल्टी होती है।
स) चुम्बकीय प्रबलता आकार पर निर्भर करती है।
द) चुम्बकत्व अस्थायी होता है।
257. -----में विद्युत चुम्बक का प्रयोग नहीं होता ?
अ) कम्प्रेसर मोटर कॉन्टेक्टर
ब) बैट्री चार्जर
स) 42KV LA
द) टरेट CT

258. ----- का कार्य सिद्धांत विद्युत चुम्बकत्व पर आधारित है।
 अ) LA ब) कैपेसिटर स) CB द) AT
259. तापमान की श्रेणी के अनुसार न्यूनतम क्षमता वाले पदार्थों को ----- श्रेणी में रखा गया है।
260. तापमान की श्रेणी के अनुसार Y श्रेणी की पदार्थ किस तापमान सीमा के लिए उपयुक्त हैं।
 अ) 0 °C ब) 180 °C स) 90 °C द) 270 °C
261. तापमान की श्रेणी के अनुसार अधिकतम क्षमता वाले पदार्थों को ----- श्रेणी में रखा गया है।
262. तापमान की श्रेणी के अनुसार C श्रेणी की पदार्थ किस तापमान सीमा के लिए उपयुक्त हैं।
 अ) 0 °C से अधिक 80 °C से कम।
 ब) 0 °C से अधिक 90 °C से कम।
 स) 150 °C
 द) 180 °C से अधिक।
263. किसी रेक्टिफायर सर्किट का मुख्य घटक -
 अ) प्रतिरोध ब) डायोड स) कैपेसिटर द) चोक क्वाइल
264. विद्युत ऊर्जा का उत्पादन सामान्यतः कितने फेज़ में होता है?
 अ) 1 ब) 2 स) 3 द) 4
265. ACTM का संबंध किससे है ?
 अ) TRD इंस्टॉलेशन के अनुरक्षण से।
 ब) इलेक्ट्रीफायड सेक्शन में विभिन्न विभागों के लिए दिशा निर्देश ।
 स) TPC की कार्य विधि। द) उपरोक्त सभी।
266. विद्युत धारा बहने की दिशा -
 अ) हाइ-वोल्टेज से लो-वोल्टेज। ब) लो-वोल्टेज से हाइ-वोल्टेज।
 स) दो बिन्दुओं के बीच जिनका वोल्टेज समान है।
 द) ऐसा कोई नियम नहीं होता।
267. जब OHE का वोल्टेज -----KV या उससे कम हो जाता है तब TPC को कैटनरी ईडीकेशन मिलता है।
268. ऐसे परिक्षण जो एक ही मापक उपकरण से किये जा सकते हैं-
 अ) PI / IR ब) BDV / DGA

- स) THRC / IR द) PPM / BDV

269. बिजली मीटर-रीडिंग के संदर्भ में युनिट खपत से क्या तात्पर्य है-
अ) KVA ब) KVAR स) KWH द) KA

270. मेगर के संबंध में रेन्ज शब्द का क्या अर्थ है ?
अ) स्केल पर अधिकतम $M \Omega$ का मान ब) वोल्टेज
स) घुमाये जाने वाले हैंडल का RPM
द) स्केल पर प्रारंभिक $M \Omega$ का मान

271. निम्न में से अनंत के लिए प्रयोग होने वाला चिन्ह ?
अ) $M \Omega$ ब) ∞ स) $^\circ C$ द) ∞

272. TR-1 ----- को दिया जाता है।

273. OHE लाईन-मैन को दिया जाने वाला योग्यता-प्रमाण-पत्र -----

274. TR-5 योग्यता-प्रमाण-पत्र किसे दिया जाता है?
अ) लाईन-मैन ब) PSI फिटर
स) RC फिटर द) PSI सुपरवाइजर

275. TR-2 के अनुसार एक वर्क-मैन किस कार्य के लिए अधिकृत नहीं होता-
अ) OHE पर कार्य करने के लिए।
ब) 25KV आइसोलेटर का प्रचालन करने के लिए।
स) TPC के निर्देश पर भी स्विचिंग स्टेशन के स्विच-गियर का प्रचालन।
द) किसी नई संस्थापना को चालू करने के लिए ।

276. TR-5 के अनुसार एक वर्क-मैन क्या करने के लिए अधिकृत होता है?
अ) परमीट टू वर्क जारी करने के लिए।
ब) EHV संस्थापनाओं पर पावर ब्लॉक लेने के लिए।
स) किसी संस्थापना को चालू करने के लिए।
द) TPC के निर्देश पर 25KV संस्थापनाओं को शट-डाउन करने के लिए।

277. पावर ब्लॉक के दौरान खण्ड(सब सेक्टर) की सुरक्षा के लिए प्रायः किस विधि का प्रयोग आवश्यक नहीं होता -
अ) परमीट-टू-वर्क ब) AC इंजनों का यातायात बाधित करना
स) फीडर CB ट्रिप करना द) डिस्चार्ज रॉड लगाना

278. रिमोट कंट्रोल स्किल्ड आर्टीज़न को TR - ---- योग्यता प्रमाण-पत्र दिया जाता है ।

279. दो डिस्चार्ज रॉड के बीच की अधिकतम दूरी ?
अ) 1 मीटर ब) 10 मीटर स) 100 मीटर द) 1000 मीटर

280. डिस्चार्ज रॉड को मास्ट पर क्लैम्प करते समय किन बातों का ध्यान रखना चाहिए ?
- 1) केबल तथा लग कनेक्शन।
 - 2) डिस्चार्ज रॉड का कार्य स्थल के दोनों तरफ होना।
 - 3) स्ट्रक्चर बॉण्ड ।
 - 4) दो डिस्चार्ज रॉड के बीच की दूरी।
- अ) 1,2 ब) 2,3 स) 2,4 द) उपरोक्त सभी।
281. वोल्टेज, करंट तथा रजिस्टेन्स का आपसी संबंध ओहम के नियम द्वारा बताया जाता है। (सही / गलत)
282. तार की लम्बाई बढ़ाने से उसका प्रतिरोध बढ़ता है। (सही / गलत)
283. तार की लम्बाई बढ़ाने से उसका प्रतिरोध घटता है। (सही / गलत)
284. तार की मोटाई बढ़ाने से उसका प्रतिरोध घटता है। (सही / गलत)
285. तार की मोटाई बढ़ाने से उसका प्रतिरोध बढ़ता है। (सही / गलत)
286. तापमान बढ़ने से चालकों का प्रतिरोध बढ़ता है। (सही / गलत)
287. तापमान बढ़ने से चालकों का प्रतिरोध घटता है। (सही / गलत)
288. तापमान बढ़ने से कुचालकों का प्रतिरोध बढ़ता है। (सही / गलत)
289. तापमान बढ़ने से कुचालकों का प्रतिरोध घटता है। (सही / गलत)
290. चालकों का प्रतिरोध तापमान बढ़ने से बढ़ता तथा तापमान घटने से घटता है।
(सही / गलत)
291. चालकों का प्रतिरोध तापमान बढ़ने से घटता तथा तापमान घटने से बढ़ता है।
(सही / गलत)
292. चालकों के प्रतिरोध में परिवर्तन तापमान में परिवर्तन के समानुपाती होता है।
(सही / गलत)
293. AC सप्लाई को DC में बदला जा सकता है किन्तु DC को AC में नहीं।
(सही / गलत)
294. ईसुलेशन रजिस्टेन्स के मान पर तापमान का कोई प्रभाव नहीं पड़ता ।
(सही / गलत)
295. ईसुलेशन रजिस्टेन्स का मान तापमान बढ़ने से कम होता है। (सही / गलत)
296. इलेक्ट्रिकल क्लियरेन्स तथा वर्किंग क्लियरेन्स एक ही तथ्य के दो भिन्न नाम हैं। (सही / गलत)

297. रेखा चित्र जिसे प्लान कहते हैं उससे वस्तु के तीनो आयाम (लम्बाई, चौड़ाई, ऊँचाई) का पता चलता है।(सही / गलत)
298. चुम्बक को टुकड़ों में काट कर उसके ध्रुवों को परस्पर अलग कर सकते हैं। (सही / गलत)
299. किसी चुम्बक में सदैव दो ध्रुव होते हैं। (सही / गलत)
300. विद्युत्प्ररोधी क्षमतायें तापमान से प्रभावित होती हैं इसलिए विद्युत्प्ररोधी पदार्थों को तापमान की श्रेणियों में बांटा गया है। (सही / गलत)
301. IR परिक्षण करते समय मेगर का चुनाव वाईडिंग के रेटेड वोल्टेज के अनुसार किया जाना चाहिए।(सही / गलत)
302. वाईडिंग रजिस्ट्रेशन तथा इंसुलेशन रजिस्ट्रेशन एक ही तथ्य के दो नाम हैं। (सही / गलत)
303. सुरक्षा की दृष्टि से दो डिस्चार्ज के बीच की दूरी 1 किलोमीटर से अधिक होनी चाहिए। (सही/गलत)
304. डिस्चार्ज रॉड को उस मास्ट पर क्लैम्प किया जाना चाहिए जिस पर स्ट्रक्चर बॉण्ड लगा हो। (सही/ गलत)
305. एक से अधिक सेलों के परस्पर जोड़ को ----- कहते हैं।
306. लेड-एसिड सेल का सेल वोल्टेज----- वोल्ट होता है।
307. विद्युत् सेल -----ऊर्जा को विद्युत् ऊर्जा में बदलते हैं।
308. विद्युत् सेल से प्राप्त सप्लाय ----- होती है। (AC, DC)
309. बैट्री-चार्जर मूलतः ----- सर्किट है।
310. किसी बैट्री को उपयोग में लाने से पूर्व DC सप्लाय स्रोत से जोड़ना बैट्री ----- कहलाता है।
311. पूरी तरह से चार्ज लेड-एसिड सेल का सेल वोल्टेज-----वोल्ट होता है।
312. पूरी तरह से डिस्चार्ज लेड-एसिड सेल का सेल वोल्टेज-----वोल्ट होता है।
313. लेड-एसिड सेल के ईलेक्ट्रोलाइट के लिए गंधक का अम्ल तथा ----- का प्रयोग किया जाता है।
314. लेड-एसिड सेल के ईलेक्ट्रोलाइट के लिए -----का अम्ल तथा डिस्टिल-वाटर का प्रयोग किया जाता है।
315. पूरी तरह से चार्ज लेड-एसिड सेल के ईलेक्ट्रोलाइट का SPG-----होता है।
316. पूरी तरह से डिस्चार्ज लेड-एसिड सेल के ईलेक्ट्रोलाइट का SPGहोता है?
317. बैट्री की क्षमता ----- में बताई जाती है।

318. सेलों को सीरीज़ में जोड़ने पर ----- बढ़ता है। (वोल्टेज़/ क्षमता)
319. सेलों को पैरलल में जोड़ने पर ----- बढ़ती है। (वोल्टेज़/ क्षमता)
320. सेल की ----- उसके आकार पर निर्भर करती है। (वोल्टेज़/ क्षमता)
321. सेलों का सामान्य अनुरक्षण ----- दिनों के अन्तराल पर किया जाता है।
322. SPG के मान में तापमान संशोधन के लिए हाईड्रोमीटर की रीडिंग में -----
----- जोड़ा या घटाया जायेगा।
323. SPG के मान में तापमान संशोधन के लिए ----- से.ग्रेड तापमान को
आधार माना गया है।
324. इलेक्ट्रोलाइट का लेवल पूर्ववत करने के लिए ----- का प्रयोग
किया जाता है। (इलेक्ट्रोलाइट, डिस्टिल वाटर, एसिड)
325. बैट्री को बहुत कम चार्जिंग रेट से चार्ज करना ----- कहलाता है।
(बूस्ट चार्जिंग, ट्रिकल चार्जिंग)
326. बैट्री को अधिक चार्जिंग रेट से कम समय के लिए चार्ज करना -----
कहलाता है। (बूस्ट चार्जिंग, ट्रिकल चार्जिंग)
327. इलेक्ट्रोलाइट तैयार करने के लिए सामान्यतः ----- का पात्र
उपयोग करना चाहिए। (स्टेनलेस स्टील, कांच या पोर्सीलीन , तांबा)
328. बैट्री टर्मिनल पर सफेद पदार्थ का जमना ----- कहलाता है।
329. बैट्री पर सल्फेशन होना बैट्री की ----- अवस्था का संकेत है।
(अच्छी, खराब)
330. बैट्री चार्ज होने पर इलेक्ट्रोलाइट की स्पेसीफिक ग्रेविटी ----- है।
(बढ़ती , घटती)
331. बैट्री डिसचार्ज होने पर इलेक्ट्रोलाइट की स्पेसीफिक ग्रेविटी ----- है।
(बढ़ती , घटती)
332. TSS में ----- AH की बैट्री लगाई जाती है।
333. SSP में ----- AH की बैट्री लगाई जाती है।
334. SP में ----- AH की बैट्री लगाई जाती है।
335. इलेक्ट्रोलाइट का SPG मालूम करने के लिए ----- का उपयोग होता है।
336. डिस्टिल-वाटर का SPG ----- होता है।
अ) 1.000 ब) 1.180 स) 1.250 द) 2.2
337. आसूत जल से DC विद्युत धारा -
अ) प्रवाहित नहीं होती। ब) प्रवाहित होती है।
स) संग्रहित होती है। द) AC में परिवर्तित होती है।

338. चार्जिंग रेट अधिक रखने पर किस बात की संभावना है?
 अ) कोई प्रभाव नहीं पड़ता। ब) गर्म होने से प्लेट क्षतीग्रस्त हो सकती है।
 स) पोलेरिटी बदल जाती है। द) बैटरी की क्षमता बढ़ जाती है।
339. किसी सेल में गैस के बुलबुले तेजी से बनना किस बात का संकेत है ?
 अ) ओवर चार्जिंग ब) अन्डर चार्जिंग
 स) नो-लोड द) डिस्चार्ज
340. किसी बैटरी सेट द्वारा अच्छे कार्य निष्पादन की आवश्य शर्त -
 1. सभी सेल का टर्मिनल वोल्टेज एक समान होना चाहिए।
 2. सभी सेल का AH समान होना चाहिए।
 3. किसी समय पर सभी सेल का SPG करीब-करीब समान होना चाहिए।
 4. पोजीटिव टर्मिनल पोजीटिव से तथा निगेटिव निगेटिव से जोड़ना चाहिए।
 अ) 1 एवं 4 ब) 3 एवं 4
 स) 1,2 तथा 3 द) उपरोक्त सभी
341. 40 AH बैटरी की क्षमता के संदर्भ असत्य कथन -
 अ) 1 एम्पीयर 40 घंटे तक। ब) 40 एम्पीयर 1 घंटे तक।
 स) 4 एम्पीयर 10 घंटे तक। द) 40 एम्पीयर प्रती घंटे की दर।
342. सभी प्रकार के सेलों को डिस्चार्ज होने पर पुनः चार्ज करके बारम्बार उपयोग में लाया जा सकता है।(सही/ गलत)
343. प्राथमिक सेल डिस्चार्ज होने के बाद पुनः चार्ज नहीं किये जा सकते हैं।
 (सही/ गलत)
344. सेकण्डरी सेल डिस्चार्ज होने के बाद पुनः चार्ज नहीं किये जा सकते हैं।
 (सही/ गलत)
345. सेकण्डरी सेल डिस्चार्ज होने के बाद पुनः चार्ज किये जा सकते हैं।
 (सही/ गलत)
346. विद्युत सेल को चार्ज करने के लिए DC सप्लाई की आवश्यकता होती है।
 (सही/ गलत)
347. विद्युत सेल AC सप्लाई द्वारा चार्ज किये जाते हैं।(सही/ गलत)
348. ईलेक्ट्रोलाइट विद्युत कुचालक होते हैं।(सही/ गलत)
349. ईलेक्ट्रोलाइट विद्युत चालक होते हैं।(सही/ गलत)
350. ईलेक्ट्रोलाइट डिस्टिल वाटर को कहते हैं। (सही/ गलत)
351. लेड-एसिड सेल के ईलेक्ट्रोलाइट की प्रकृति अम्लीय होती है। (सही/ गलत)
352. लेड-एसिड सेल के ईलेक्ट्रोलाइट की प्रकृति क्षारीय होती है।(सही/ गलत)

353. डिस्टिल-वाटर की प्रकृती न्युट्रल होती है ।(सही/ गलत)
354. ईलेक्ट्रोलाइट तैयार करने के लिए एक भाग गंधक का अम्ल तथा तीन या चार भाग आसूत-जल का प्रयोग होता है।(सही/ गलत)
355. ईलेक्ट्रोलाइट तैयार करने के लिए एक भाग गंधक का अम्ल तथा तीन या चार भाग नल के पानी का प्रयोग होता है।(सही/ गलत)
356. ईलेक्ट्रोलाइट तैयार करने के लिए तीन या चार भाग गंधक का अम्ल तथा एक भाग आसूत-जल का प्रयोग होता है। (सही/ गलत)
357. बैट्री की क्षमता KW में बताई जा सकती है । (सही/ गलत)
358. सेलों को सीरीज़ में जोड़ने पर वोल्टेज़ बढ़ता है पर क्षमता स्थिर रहती है। (सही/ गलत)
359. सेलों को सीरीज़ में जोड़ने पर वोल्टेज़ स्थिर रहता है पर क्षमता बढ़ती है। (सही/ गलत)
360. सेलों को पैरलल में जोड़ने पर वोल्टेज़ बढ़ता है पर क्षमता स्थिर रहती है। (सही/ गलत)
361. सेलों को पैरलल में जोड़ने पर वोल्टेज़ स्थिर रहता है पर क्षमता बढ़ती है।
362. सेल का आकार बड़ा करने पर क्षमता बढ़ती है ।(सही/ गलत)
363. सेल का आकार बड़ा करने पर वोल्टेज़ बढ़ता है ।(सही/ गलत)
364. लेड-एसिड सेल का सेल वोल्टेज़ उसके आकार पर निर्भर नहीं करता है। (सही/ गलत)
365. पोजेटिव टर्मिनल को पोजेटिव से जोड़ना पैरलल कनेक्शन होगा । (सही/ गलत)
366. पोजेटिव टर्मिनल को निगेटिव से जोड़ना पैरलल कनेक्शन होगा । (सही/ गलत)
367. पोजेटिव टर्मिनल को निगेटिव से जोड़ना सीरीज़ कनेक्शन होगा । (सही/ गलत)
368. ईलेक्ट्रोलाइट बनाने के लिए डिस्टिल वाटर में एसिड मिलाया जाता है । (सही/ गलत)
369. ईलेक्ट्रोलाइट बनाने के लिए एसिड में डिस्टिल वाटर मिलाया जाता है । (सही/ गलत)
370. 27 °C से अधिक प्रति डिग्री तापमान के लिए हाईड्रोमीटर की रीडिंग में 0.0007 जोड़ा जाना चाहिए। (सही/ गलत)
371. 27 °C से अधिक प्रति डिग्री तापमान के लिए हाईड्रोमीटर की रीडिंग में

- 0.0007 घटाया जाना चाहिए। (सही/ गलत)
372. 27 °C से कम प्रति डिग्री तापमान के लिए हाईड्रोमीटर की रीडिंग में 0.0007 जोड़ा जाना चाहिए। (सही/ गलत)
373. 27 °C से कम प्रति डिग्री तापमान के लिए हाईड्रोमीटर की रीडिंग में 0.0007 घटाया जाना चाहिए। (सही/ गलत)
374. बैट्री से निकलने वाली गैस विस्फोटक होती है ।(सही/ गलत)
375. बैट्री से निकलने वाली गैस विस्फोटक नहीं होती है ।(सही/ गलत)
376. वेन्ट प्लग में बना छेद सामान्यतः खुला होना चाहिए किंतु बूस्ट चार्जिंग के समय बन्द होना चाहिए। (सही/ गलत)
377. वेन्ट प्लग का छेद सामान्यतः बंद होना चाहिए ।(सही/ गलत)
378. वेन्ट प्लग का छेद सामान्यतः खुला होना चाहिए ।(सही/ गलत)
379. स्पेसीफिक ग्रेविटी की ईकाई ग्राम/से.मी. ³ होती है।(सही/ गलत)
380. स्पेसीफिक ग्रेविटी की कोई ईकाई नहीं होती है ।(सही/ गलत)
381. TSS में 200AH की बैट्री लगाई जाती है । (सही/ गलत)
382. TSS में 40AH की बैट्री लगाई जाती है । (सही/ गलत)
383. SSP तथा SP में 200AH की बैट्री लगाई जाती है ।
384. SSP तथा SP में 40AH की बैट्री लगाई जाती है । (सही/ गलत)
385. प्रायः AH क्षमता बढ़ने से बैट्री का आकार भी बड़ा होता है।(सही/ गलत)
386. प्रायः AH क्षमता बढ़ने से बैट्री का आकार छोटा होता जाता है। (सही/ गलत)
387. लेड-एसिड सेल का सेल वोल्टेज उसके आकार पर निर्भर नहीं करता।
388. इलेक्ट्रोलाइट का SPG ज्ञात करने के लिए हाईड्रोमीटर का प्रयोग किया जाता है। (सही/ गलत)
389. ट्रांसफॉर्मर की क्षमता ----- में बताई जाती है।
390. सिंगल फेज़ ट्रांसफॉर्मर में ----- वाईडिंग होती हैं। (एक , दो)
391. अच्छे सिलिका जेल का रंग ----- होता है।
392. नमी सोख लेने पर सिलिका जेल का रंग ----- ---हो जाता है ।
393. ट्रांसफॉर्मर ऑयल का BDV -----KV होना चाहिए।
394. नये ट्रांसफॉर्मर ऑयल का रंग ----- होता है।
395. ----- बेल-टैंक तथा कन्जरवेटर टैंक के बीच लगा होता है।
(बुकोल्ज़ रिले / ब्रीदर)
396. जब ट्रांसफॉर्मर ऑयल का रंग -----हो जाये तो उसे बदल देना चाहिए।
397. ट्रांसफॉर्मर ऑयल किस काम आता है ?

- अ-ट्रांसफॉर्मर को ठंडा करने ब- इंसुलेशन के लिए स- दोनो के लिए।
398. ट्रांसफॉर्मर ऑयल किस प्रकार का तेल है?
 अ) खाने का तेल ब) ईंधन स) विद्युत रोधी तेल
399. ट्रांसफॉर्मर को अत्यधिक आंतरिक दबाव से बचाने के लिए किसका प्रयोग किया जाता है। (PRD, बुकोल्ज़ रिले , MOLG, ड्रेन-कॉक)
400. लो-ऑयल-लेवल प्रोटेक्शन के लिए ----- का प्रयोग हुआ है।
401. ट्रांसफॉर्मर ऑयल को ठंडा रखने के लिए इनमे से किसका प्रयोग होता है।
 (कंजरवेटर टैंक , रेडीयेटर , ब्रीदर , कोर , टैप-चेन्जर)
402. आदर्श अवस्था में ट्रांसफॉर्मर क्या नहीं करता है।
 (स्टेप-अप, स्टेप-डाउन, आयरन लॉस, कॉपर लॉस, आयरन+कॉपर लॉस)
403. ट्रांसफॉर्मर वाइंडिंग में होने वाला ऊर्जा-क्षय ----- कहलाता है।
404. ट्रांसफॉर्मर कोर में होने वाला ऊर्जा-क्षय ----- कहलाता है।
405. ट्रांसफॉर्मर के प्राइमरी तथा सेकंडरी वाइंडिंग के रेटेड वोल्टेज का अनुपात ----- रेशियो कहलाता है।
406. किसी ट्रांसफॉर्मर में प्राइमरी वोल्टेज तथा करंट का गुणनफल सेकंडरी वोल्टेज तथा ----- के गुणनफल के बराबर होता है।
407. ट्रांसफॉर्मर ऑयल में उपस्थित नमी की मात्रा बताने की ईकाई ----- है।
408. ट्रांसफॉर्मर का POH ----- साल में किया जाता है।
409. 132kv/25kv ट्रांसफॉर्मर के लिए 30 °C पर LV तथा E के बीच इंसुलेशन रजिस्टेन्स का मान ----- से कम नहीं होना चाहिए।
410. 132kv/25kv ट्रांसफॉर्मर के लिए 30 °C पर HV तथा E के बीच इंसुलेशन रजिस्टेन्स का मान ----- से कम नहीं होना चाहिए।
411. 132kv/25kv ट्रांसफॉर्मर के लिए 30 °C पर LV तथा HV के बीच इंसुलेशन रजिस्टेन्स का मान ----- से कम नहीं होना चाहिए।
412. ट्रैक्शन ट्रांसफॉर्मर को ----- मिनट तक 50 % ओवर लोड पर चलाया जा सकता है।
413. ट्रैक्शन ट्रांसफॉर्मर को 15 मिनट तक ----- % ओवर लोड पर चलाया जा सकता है।
414. ट्रैक्शन ट्रांसफॉर्मर को ----- मिनट तक 100 % ओवर लोड पर चलाया जा सकता है।
415. ट्रैक्शन ट्रांसफॉर्मर को 5 मिनट तक ----- % ओवर लोड पर चलाया जा सकता है।
416. ट्रैक्शन ट्रांसफॉर्मर के लिए ऑयल टम्प्रेचर अलार्म की सेटिंग ----- °C पर

- होती है।
417. ट्रैक्शन ट्रांसफॉर्मर के लिए ऑयल टम्प्रेचर ट्रिप की सेटिंग ----- °C पर होती है।
418. ट्रैक्शन ट्रांसफॉर्मर के लिए वाईडिंग टम्प्रेचर अलार्म की सेटिंग ----- °C पर होती है।
419. ट्रैक्शन ट्रांसफॉर्मर के लिए वाईडिंग टम्प्रेचर ट्रिप की सेटिंग ----- °C पर होती है।
420. ट्रैक्शन ट्रांसफॉर्मर में सामान्यतः ----- टैप-चेन्जर का प्रयोग किया गया है। (ऑन लोड , ऑफ-लोड)
421. ट्रांसफॉर्मर के प्राईमरी तथा सेकण्डरी वाईडिंग में लपेटों की संख्या का अनुपात ----- कहलाता है।
422. ट्रांसफॉर्मर ऑयल से खतरा हो सकता है क्योंकि यह ----- होता है। (ज्वलनशील , विषैला, नमी सोखने वाला , अप्राकृतिक)
423. यदि N - लपेटों की संख्या , V - वोल्टेज , I - करंट है तो इनमें से ट्रांसफॉर्मर के संबंध में क्या सही नहीं होगा - -----
- $$\text{अ} - \frac{N_1}{N_2} = \frac{V_1}{V_2} \quad \text{ब} - \frac{V_1}{V_2} = \frac{I_2}{I_1} \quad \text{स} - \frac{N_1}{N_2} = \frac{V_1}{V_2} = \frac{I_1}{I_2}$$
424. ONAN / ONAF इनमें से किसका प्रकार है-
- अ- ट्रांसफॉर्मर को ठंडा रखने की विधि।
- ब - वाईडिंग।
- स - टैप-चेन्जर।
- द - ट्रांसफॉर्मर अर्थिंग।
425. यदि ट्रांसफॉर्मर का टर्मिनल कनेक्शन बदरंग दिखे तो यह किस तथ्य का संकेत है -
- अ) टर्मिनल कनेक्शन ढीला होना से गर्म हो रहा है।
- ब) ट्रांसफॉर्मर ओवर लोड हो रहा है।
- स) TSS का EPR अधिक है।
- द) उपरोक्त में से कोई नहीं।
426. ट्रांसफॉर्मर ऑयल को गर्म करने पर यह कड़कड़ाहट की आवाज कर रहा है, यह किस तथ्य का संकेत है ?
- अ) तेल में अम्ल की मात्रा अधिक हो गई है।

- ब) तेल सैम्पल बहुत ठंडा है।
 स) तेल में पानी अधिक मात्रा में है।
 द) तेल का BDV अधिक हो गया है।
427. ऑयल टम्प्रेचर ट्रिप की व्यवस्था इसलिए दी गई है क्योंकि उच्च तापमान पर
 अ) ऑयल जमने लगता है।
 ब) इंसुलेशन की विद्युत्प्ररोधी क्षमताएँ तेजी से कम होती हैं।
 स) बुकोल्ज़ रिले ऑपरेट हो जाता है।
 द) ऑयल गाढ़ा होने टैप-चेन्जर फेल हो जायेगा।
428. बुकोल्ज़ रिले के संबंध में असत्य कथन
 अ) यह इलेक्ट्रोमैकनीकल रिले है।
 ब) ट्रांसफॉर्मर को आंतरिक फॉल्ट से सुरक्षा देता है।
 स) ऑपरेट होने के लिए गैस इकट्ठा होना अनिवार्य है।
 द) बेल-टैंक तथा कंजरवेटर को जोड़ने वाली पाईप में लगा होता है।
429. ट्रांसफॉर्मर बुशिंग के लिए टैन-डेल्टा का मान ----- से अधिक नहीं होना चाहिए ।
430. ट्रांसफॉर्मर बुशिंग के लिए कैपेसिटेंस का मान ----- % से अधिक नहीं होना चाहिए।
431. अनुरक्षण के दौरान यदि OIP कन्डेशर बुशिंग में तेल का तल निर्धारित मान से कम दिखायी पड़ने पर क्या कार्यवाही की जायेगी -
 अ) कोई विशेष कार्यवाही नहीं होगी , ट्रांसफॉर्मर लोड पर लिया जायेगा।
 ब) तुरंत बुशिंग बदला जायेगा।
 स) ट्रांसफॉर्मर को न्यूनतम टैप पर रख कर लोड ले सकते हैं।
 द) बुशिंग की टैन-डेल्टा तथा कैपेसिटेंस जांच की जायेगी तथा परिणाम के अनुरूप कार्यवाही की जायेगी।
432. ----- अनुरक्षण के दौरान OTI/WTI री-सेट नहीं किया जायेगा ?
 अ) मासिक ब) अर्धवार्षिक स) वार्षिक द) उपरोक्त में से कोई नहीं।
433. OTI क्या बताता है ?
 अ) ट्रांसफॉर्मर ऑयल का अवधी के दौरान औसत तापमान।
 ब) ट्रांसफॉर्मर ऑयल का अवधी के दौरान न्यूनतम तापमान।
 स) ट्रांसफॉर्मर ऑयल का अवधी के दौरान अधिकतम तापमान।
 द) ट्रांसफॉर्मर ऑयल का अधिकतम अनुमेय तापमान।
434. WTI क्या बताता है ?

- अ) ट्रांसफॉर्मर वाईडिंग का अवधी के दौरान औसत तापमान।
 ब) ट्रांसफॉर्मर वाईडिंग का अवधी के दौरान अधिकतम तापमान।
 स) ट्रांसफॉर्मर वाईडिंग का अवधी के दौरान न्यूनतम तापमान।
 द) ट्रांसफॉर्मर वाईडिंग का अधिकतम अनुमेय तापमान।
435. TI/MI 38 के अनुसार ट्रेक्शन ट्रांसफॉर्मर के मासिक अनुरक्षण के दौरान क्या करना अनिवार्य नहीं है।
 अ) EPR की जांच।
 ब) सिलिका जेल ब्रीदर की जांच।
 स) OTI / WTI की जांच।
 द) बस-बार कनेक्शन को बदरंग होने की जांच।
436. PI की जांच के लिए किस उपकरण का उपयोग किया जाता है।
 अ) अमीटर , वोल्टमीटर तथा वाटमीटर । ब) अर्थ-टेस्टर।
 स) मेगर । द) BDV टेस्टर ।
437. वाईडिंग की स्थिती अच्छी कही जायेगी यदि पोलेराईजेशन-ईंडेक्श का मान-
 अ) 1 से कम हो । ब) 2 से अधिक हो।
 स) पोलेराईजेशन-ईंडेक्श वाईडिंग की स्थिती नहीं बताता।
 द) 1 से अधिक किन्तु 2 से कम हो।
438. पोलेराईजेशन-ईंडेक्श की ईकाई -
 अ) वोल्ट प्रति सेकण्ड। ब) मेगा-ओहम प्रति सेकण्ड।
 स) वोल्ट प्रति रोटेशन । द) कोई ईकाई नहीं होती ।
439. अर्ध-वार्षिक अनुरक्षण के दौरान BDV टेस्ट के लिए ऑयल सैम्पल-- लेना चाहिए-
 अ) ट्रांसफॉर्मर शट-डाउन के तुरंत बाद।
 ब) ट्रांसफॉर्मर ऑयल ठंडा होने के बाद।
 स) ट्रांसफॉर्मर को 5 नं. टैप पर आधा घंटा चलाने के बाद।
 द) पूरे अनुरक्षण के दौरान थोड़े-2 अंतराल पर सैम्पल ले कर सैम्पल-बोटल भरना चाहिए।
440. R60/R10 तथा R600/R60 संकेतों का संबंध किस परिक्षण से है?
 अ) BDV ब) PPM स) टैन-डेल्टा द) पोलेराईजेशन -ईंडेक्श
441. R60/R10 संकेत से तात्पर्य -
 अ) 60 Ω तथा 10 Ω के प्रतिरोध।
 ब) मेगर चलाने के 10 सेकण्ड बाद तथा 60 सेकण्ड बाद की रीडिंग।

- स) मेगर का हैंडल चलाना बंद करने के 10 सेकण्ड तथा 60 सेकण्ड बाद की रीडिंग।
 द) उपरोक्त में से कोई नहीं।
442. TI/MI38 के अनुसार PI परिक्षण के परिणाम यदि 1.1 से कम हों तो क्या कार्यवाही की जानी चाहिए।
 अ) ट्रांसफॉर्मर ऑयल बदला जाना चाहिए।
 ब) ट्रांसफॉर्मर अच्छी स्थिती में है अतः किसी सुधारात्मक कार्यावाही की आवश्यकता नहीं है।
 स) ट्रांसफॉर्मर ऑयल फिल्टरेशन कर पुनः जांच करनी चाहिए।
 द) TI/MI 38 इस संबंध में कोई दिशानिर्देश नहीं देता।
443. निम्नलिखित में से कौन सा परिक्षण ट्रांसफॉर्मर ऑयल सैम्पल पर नहीं किया जाता-
 अ) IR ब) DGA स) BDV द) PPM
444. DGA परिक्षण ट्रांसफॉर्मर ऑयल में घुली ----- का परिक्षण है।
445. ट्रांसफॉर्मर ऑयल की विद्युत्प्ररोधी क्षमता का परिक्षण ----- टेस्ट द्वारा किया जाता है।
 अ) IR ब) DGA स) BDV द) PPM
446. ट्रांसफॉर्मर ऑयल में उपस्थित पानी की मात्रा किस परिक्षण से ज्ञात करते हैं?
 अ) क्रेकल टेस्ट ब) PPM स) कलर टेस्ट द) टैन-डेल्टा
447. क्रेकल टेस्ट से ऑयल में घुली पानी की मात्रा का ज्ञान होता है।(सही/गलत)
448. ईसुलेशन रजिस्ट्रेंस को प्रभावित करने वाले कारक -
 अ) वाईडिंग का आकार ब) तापमान
 स) नमी द) उपरोक्त सभी
449. IR परिक्षण में मेगर रीडिंग के साथ -----का तापमान रिकॉर्ड करना चाहिए।
 अ) हवा ब) MOLG स) OTI द) अ तथा स
450. IR परिक्षण के दौरान मेगर रीडिंग के साथ-साथ परिक्षण रिपोर्ट में क्या दर्ज होना चाहिए ?
 अ) मेगर की रेटिंग ब) मेगर का मेक तथा सीरियल नम्बर
 स) वातावरण तथा ऑयल का तापमान द) उपरोक्त सभी
451. ट्रैक्शन ट्रांसफॉर्मर का IR परिक्षण के लिए 500 V मेगर का प्रयोग करना चाहिए। (सही / गलत)

452. ऑयल फिल्टरेशन के संबंध असत्य कथन -

- अ) तापमान बढ़ने के साथ IR वैल्यू कम होता है।
- ब) नमी तथा अशुद्धी के निकल जाने से BDV अच्छा मिलने लगता है।
- स) ऑयल फिल्टरेशन से घुली हुई गैस नहीं निकल पाती।
- द) फिल्टरेशन बन्द करने पर तापमान गिरता है IR तेजी से बढ़ता है।

453. वार्षिक अनुरक्षण के दौरान शिल्ड OIP बुशिंग पर नहीं किया जाने वाला परिक्षण -

- अ) टैन-डेल्टा ब) कैपेसिटेंस स) IR द) क्रैकल

454. ट्रैक्शन ट्रांसफॉर्मर के 25KV बुशिंग में स्पार्क-गैप का मान प्रायः-

- अ) 16.5 से.मी. ब) 25 से.मी. स) 75 से.मी. द) 1 मीटर

455. टैप-चेन्जर का टैप बढ़ाने से वोल्टेज बढ़ता है क्यों की -

- अ) वाईडिंग में लपेटों की संख्या बढ़ती है।
- ब) वाईडिंग का रजिस्टेन्स कम हो जाता है।
- स) वाईडिंग का इंसुलेशन रजिस्टेन्स कम हो जाता है।
- द) इन-कमिंग वोल्टेज बढ़ जाता है।

456. BDV टेस्टर इलेक्ट्रोड गैप -----मि.मी.।

457. बुशिंग CT सामान्यतः किसका अंग है ?

- अ) पावर ट्रांसफॉर्मर ब) AT -100KVA
- स) SP में AT द) CB-

458. बुशिंग CT पावर ट्रांसफॉर्मर के सभी बुशिंग में लगी होती है।(सही /गलत)

459. PRD कहाँ लगा होता है ?

- अ) कंट्रोल पैनल के पीछे ब) ट्रांसफॉर्मर मार्शलिंग बॉक्स के नीचे।
- स) बेल-टैंक के ऊपर। द) कंजरवेटर टैंक के बगल।

460. क्या उपयोग के दौरान ट्रांसफॉर्मर ऑयल में स्वतः अम्ल का निर्माण होने लगता है ? ----- (हां / नहीं)

461. क्या ट्रांसफॉर्मर ऑयल ज्वलनशील द्रव है ? ----- (हां/नहीं)

462. ट्रांसफॉर्मर की क्षमता KW में बताई जाती है।(सही/ गलत)

463. बुकोल्ज रिले ऑयल-प्रेसर रिले है। (सही/ गलत)

464. ट्रांसफॉर्मर की क्षमता KVA में बताई जाती है।(सही/ गलत)

465. ट्रांसफॉर्मर ऑयल का BDV 60KV से कम नहीं होना चाहिए।
(सही/ गलत)

466. ट्रांसफॉर्मर ऑयल का BDV 60KV से अधिक नहीं होना चाहिए।
(सही/ गलत)
467. TSS में दो पावर ट्रांसफॉर्मर के बीच बनी दिवाल को बैफल-वाल कहते हैं। (सही/ गलत)
468. ट्रांसफॉर्मर ऑयल ईंधन के रूप में काम आने वाला खनिज तेल है। (सही/ गलत)
469. ट्रांसफॉर्मर ऑयल के रूप में कृत्रिम इंसुलेटिंग-तेल का भी प्रयोग होता है।
(सही/ गलत)
470. ट्रांसफॉर्मर ऑयल का सैम्पल गर्म, सूखे तथा स्वच्छ वातावरण में लेना चाहिए। (सही/ गलत)
471. ट्रांसफॉर्मर को उच्च आंतरिक दबाव से बचाने के लिए PRD का प्रयोग किया जाता है। (सही/ गलत)
472. ट्रांसफॉर्मर को उच्च आंतरिक दबाव से बचाने के लिए ड्रेन कॉक का प्रयोग किया जाता है। (सही/ गलत)
473. ट्रांसफॉर्मर के संदर्भ में कॉपर-लॉस से तात्पर्य वाईडिंग का घिसना है।
(सही/ गलत)
474. ट्रांसफॉर्मर के संदर्भ में आयरन-लॉस से तात्पर्य कोर का घिसना है।
(सही/ गलत)
475. स्टेप-अप ट्रांसफॉर्मर वोल्टेज बढ़ाता है। (सही/गलत)
476. स्टेप-अप ट्रांसफॉर्मर वोल्टेज घटाता है। (सही/गलत)
477. स्टेप -डाउन ट्रांसफॉर्मर विद्युत शक्ति (पावर) कम करता है। (सही/गलत)
478. ट्रांसफॉर्मर हाई वोल्टेज तथा लो-वोल्टेज सर्किट को जोड़ता है। (सही/गलत)
479. ट्रांसफॉर्मर का POH हर चार साल में किया जाता है। (सही/गलत)
480. नये ट्रांसफॉर्मर ऑयल का रंग साफ पारदर्शी होता है। (सही/गलत)
481. ट्रांसफॉर्मर के आउट-पुट वोल्टेज का नियंत्रण टैप-चेन्जर द्वारा किया जाता है। (सही/गलत)
482. ट्रांसफॉर्मर के प्राईमरी तथा सेकण्डरी वाईडिंग में लपेटों की संख्या का अनुपात टर्न रेशियो कहलाता है। (सही/गलत)
483. किसी ट्रांसफॉर्मर के लिए टर्न-रेशियो तथा वोल्टेज-रेशियो में कोई संबंध नहीं होता है। (सही/गलत)
484. ट्रांसफॉर्मर का वर्गीकरण फेजों की संख्या के आधार पर भी किया जाता है। (सही/गलत)
485. ऑटो ट्रांसफॉर्मर में प्राईमरी तथा सेकण्डरी टर्मिनल एक ही वाईडिंग से जुड़े

- होते हैं। (सही/गलत)
486. ट्रांसफॉर्मर एक ही दिशा में कार्य करता है(प्राइमरी में वोल्टेज देने पर सेकण्डरी में वोल्टेज मिलेगा परन्तु सेकण्डरी में देने पर प्राइमरी में नहीं) (सही/गलत)
487. ट्रांसफॉर्मर दोनों दिशाओं में कार्य करता है (प्राइमरी से सेकण्डरी तथा सेकण्डरी से प्राइमरी) । (सही/गलत)
488. यदि ONAN ट्रांसफॉर्मर को ONAF में चलाया जाय तो उसकी क्षमता बढ़ जाती है। (सही/गलत)
489. यदि ONAN ट्रांसफॉर्मर को ONAF में चलाया जाय तो उसकी क्षमता घट जाती है । (सही/गलत)
490. HT बुशिंग में प्रायः तेल भरा होता है। (सही/गलत)
491. HT बुशिंग सदैव शील्ड बुशिंग ही होती है। (सही/गलत)
492. यदि ट्रांसफॉर्मर ऑयल का BDV निर्धारित मान से कम मिले तो ऑयल फिल्टरेशन किया जाना चाहिए। (सही/गलत)
493. पिछली रीडिंग की तुलना में OTI / WTI में अत्यधिक बदलाव किसी असमान्य स्थिति का संकेत है। (सही/गलत)
494. अर्द्ध-वार्षिक अनुरक्षण के दौरान वे परीक्षण करना अनिवार्य नहीं है जिन्हें मासिक अनुरक्षण में किया गया है जिससे की समय की बचत की जा सके। (सही/गलत)
495. मेगर करने से पहले ट्रांसफॉर्मर बुशिंग को डस्ट तथा नमी से मुक्त करना अनिवार्य है।
496. सिंगल-फेज ट्रैक्शन ट्रांसफॉर्मर का मेगर करने के लिए उसके टर्मिनल कनेक्शन खोलना अनिवार्य नहीं है।
497. टैन-डेल्टा परीक्षण से इंसुलेशन-मटेरियल की गुणवत्ता का पता चलता है।
498. ट्रांसफॉर्मर बुशिंग के लिए टैन-डेल्टा का मान 0.007 से कम नहीं होना चाहिए। (सही/गलत)
499. ट्रांसफॉर्मर बुशिंग के लिए कैपेसिटेंस का मान 110 % से कम नहीं होना चाहिए। (सही/गलत)
500. CB द्वारा ----- की स्प्लाई नियंत्रित की जाती है। (सेक्टर, सब-सेक्टर, एलीमेंट्री सेक्शन)
501. BM द्वारा ----- की स्प्लाई नियंत्रित की जाती है। (सेक्टर, सब-सेक्टर, एलीमेंट्री सेक्शन)

502. आइसोलेटर द्वारा ----- की सप्लाई नियंत्रित की जाती है।
(सेक्टर, सब-सेक्टर, एलीमेन्ट्री सेक्शन)
503. फॉल्ट होने पर ----- स्वतः ट्रिप हो जाता है।
(CB,BM,OHE,PT-II)
504. ऑफ लोड हैंड ऑपरेटेड स्विच को ----- कहते हैं।
(CB,BM,MCB,आइसोलेटर)
505. इनमें से क्या TPC द्वारा रिमोट कंट्रोल से नियंत्रित नहीं है । -----
(CB, BM, DPI)
506. TPI , DPI , SPI ,BPI में क्या समानता है। -----
अ - सभी के साथ CB लगा होता है।
ब - सभी ट्रांसफॉर्मर को आइसोलेट करते हैं।
स - सभी FP में लगे होते हैं।
द - सभी आइसोलेटर के प्रकार हैं।
507. 25kv आइसोलेटर की खुली अवस्था में फिक्स तथा मूविंग कॉन्टेक्ट के बीच का क्लीयरेंस ----- मि.मी. होना चाहिए।
508. मेन लाइन की OHE से जुड़े आइसोलेटर की क्रम संख्या के पहले कोड -----लिखा होता है।
509. यार्ड लाइन की OHE से जुड़े आइसोलेटर की क्रम संख्या के पहले कोड -----लिखा होता है।
510. 25kv CB की सामान्य करंट क्षमता ----- एम्पीयर होती है।
511. 25kv BM की सामान्य करंट क्षमता ----- एम्पीयर होती है।
512. 25kv आइसोलेटर की सामान्य करंट क्षमता होती है।
(800/1250, 1600/2050, 800/1600 एम्पीयर)
513. किसी CB ऑपरेटिंग मैकेनिज्म तथा मूविंग कॉन्टेक्ट को ----- के द्वारा जोड़ा जाता है। (इंसुलेटिंग रॉड, कॉपर स्लीव, कनेक्टिंग टर्मिनल)
514. SF6 CB/BM के पोल-युनिट में ----- गैस भरी होती है।
515. 25KV सिंगलपोल SF6-CB का टोटल ब्रेक टाईम----- से अधिक नहीं होना चाहिए।
516. 25KV सिंगलपोल SF6- इंटरप्टर का टोटल ब्रेक टाईम----- से अधिक नहीं होना चाहिए।
517. किसी CB के लिए टोटल ब्रेक टाईम का -
अ- कम होना अच्छा है।

- ब- अधिक होना अच्छा है।
 स- CB के परफॉरमेन्स पर कोई प्रभाव नहीं पड़ता।
518. इनमे से क्या CB/BM के पोल युनिट मे नहीं होता -
 अ - फिक्स तथा मूविंग कॉन्टेक्ट।
 ब - इलेक्ट्रिक आर्क बुझाने का साधन।
 स- मेन कॉन्टेक्ट/आर्किंग कॉन्टेक्ट।
 द - ऑग्सिलरी कॉन्टेक्टर।
519. इनमे से क्या CB/BM के ऑपरेटिंग मैकेनिज्म का प्रकार नहीं है -
 अ- एयर ओपन/एयर क्लोज़।
 ब - स्प्रिंग ओपन/स्प्रिंग क्लोज़।
 स - एयर ओपन/ स्प्रिंग क्लोज़ ।
 द - ONAN / ONAF .
520. CB/BM के अनुरक्षण के लिए अनिवार्य नहीं है -
 अ - TPC से PTW प्राप्त करना।
 ब - दोनों तरफ के SPI/BPI का ओपन होना।
 स - स्विचगियर को लोकल कंट्रोल पर रखना।
 द - कार्य पूर्ण होने तक 110 वोल्ट सप्लाय बंद रखना।
 ह - उपरोक्त मे से कोई नहीं।
521. SF6 CB/BM में गैस का सामान्य दबाव -----
522. SF6 CB/BM(5Kg/cm^2) में लो-गैस प्रेशर अलार्म ----- दबाव पर आता है।
523. SF6 CB/BM 5Kg/cm^2 में लो-गैस प्रेशर लॉक आउट ----- दबाव पर होता है।
524. SF6 CB/BM में लो-गैस प्रेशर अलार्म तथा लॉक आउट का संकेत कहां से आता है?
525. गैस डेन्सिटी स्विच का कार्य है -
 अ - SF6 की शुद्धता की जांच करते रहना।
 ब - टोटल ब्रेक टाईम को नियंत्रित करना।
 स - पोल-युनिट में गैस दबाव के अनुरूप संकेत देना।
526. पोल-युनिट में गैस का दबाव----- से ज्ञात करते हैं।
 (गैस डेन्सिटी स्विच , गैस प्रेशर गेज़, कम्प्रेसर)
527. 25kv CB/BM में सामान्य वायु दबाव ----- होता है।
528. 25kv CB/BM में ----- वायु दाब पर अलार्म आता है ।
529. 25kv CB/BM में ----- वायु दाब पर लॉक-आउट होता है ।
530. 25kv CB/BM में ----- द्वारा वायु दाब नियंत्रित किया जाता है।

- अ) कम्प्रेसर ब) एयर प्रेशर लिमिट स्विच स) सेफ्टी वॉल्व द) TPC
531. 25kv CB/BM में एयर-टैंक की सुरक्षा के लिए ----- लगाया गया है।
532. SF6 CB/BM में गैस दबाव का निर्धारण के लिए मानक तापमान सामान्यतः ----- होता है।
533. आइसोलेटर का प्रचालन प्राधीकृत कर्मचारी द्वारा ही किया जायेगा ।(सही/गलत)
534. आइसोलेटर का प्रचालन कोड़ भी रेल कर्मचारी कर सकता है।(सही/गलत)
535. 25kv आइसोलेटर की खुली अवस्था में फिक्स तथा मूविंग कॉन्टेक्ट का क्लियरेन्स 500mm होना चाहिए।(सही/गलत)
536. 132kv आइसोलेटर की खुली अवस्था में फिक्स तथा मूविंग कॉन्टेक्ट का क्लियरेन्स 500mm होना चाहिए।(सही/गलत)
537. आइसोलेटर का प्रचालन ऑन लोड पर नहीं किया जाना चाहिए। (सही/गलत)
538. सामान्यतः एलीमेन्ट्री सेक्शन की सप्लाई आइसोलेटर द्वारा नियंत्रित कि जाती है ।
(सही/गलत)
539. सामान्यतः किसी सब-सेक्टर की सप्लाई BM द्वारा नियंत्रित की जाती है।(सही/गलत)
540. सामान्यतः किसी सेक्टर की सप्लाई CB द्वारा नियंत्रित की जाती है।(सही/गलत)
541. वैक्युम टाईप CB के पोल-युनिट में नाइट्रोजन गैस भरी जाती है।(सही/गलत)
542. वैक्युम टाईप CB के पोल-युनिट में कोई गैस/हवा नहीं भरी होती है।(सही/गलत)
543. 25KV सिंगलपोल SF6-CB का टोटल ब्रेक टाईम 65 मिलि सेकण्ड से अधिक नहीं होना चाहिए। (सही/गलत)
544. 25KV सिंगलपोल SF6- इंटरप्टर का टोटल ब्रेक टाईम 80 मिलि सेकण्ड से अधिक नहीं होना चाहिए। (सही/गलत)
545. SF6 गैस किसी भी अवस्था में तरल में परिवर्तित नहीं हो सकती। (सही/गलत)
546. कम ताप तथा उच्च दाब पर SF6 गैस तरल में रूपान्तरित हो जाती है।(सही/गलत)
547. CB/BM के अनुरक्षण के लिए TPC से PTW प्राप्त करना आवश्यक है। (सही/गलत)
548. CB/BM का अनुरक्षण करते समय उसे लोकल कंट्रोल पर रखना सुरक्षित होता है।
(सही/गलत)
549. CB/BM का अनुरक्षण करते समय 110 वोल्ट सप्लाई बन्द रखना सुरक्षित होता है।
(सही/गलत)
550. गैस-डेन्सिटी स्विच पोल-युनिट में दबाव के अनुसार अलार्म तथा लॉक-आउट सेकेट देता है। (सही/गलत)

551. गैस-डेन्सिटी स्विच के सेटिंग की जांच करना संभव नहीं है। (सही/गलत)
552. TSS का कम्बाईड अर्थ रजिस्टेन्स ----- Ω से अधिक नहीं होना चाहिए।
553. SSP का कम्बाईड अर्थ रजिस्टेन्स ----- Ω से अधिक नहीं होना चाहिए।
554. SP का कम्बाईड अर्थ रजिस्टेन्स ----- Ω से अधिक नहीं होना चाहिए।
555. सिंगल अर्थ पिट का अर्थ रजिस्टेन्स ----- Ω से अधिक नहीं होना चाहिए।
556. अर्थ रजिस्टेन्स का आदर्श मान ----- ।
557. ACTM के अनुसार अर्थ इलेक्ट्रोड की लम्बाई ----- मीटर होनी चाहिए।
558. ACTM के अनुसार अर्थ इलेक्ट्रोड का बोर ----- से.मी. होनी चाहिए।
559. ACTM के अनुसार दो अर्थ पिट के बीच न्यूनतम दूरी ----- मीटर है।
560. यदि अर्थ पिट रजिस्टेन्स 10 Ω से कम आ रहा हो तब उसका उपचार चारकोल तथा नमक के मिश्रण से किया जाना चाहिए। (सही/गलत)
561. यदि अर्थ पिट रजिस्टेन्स 10 Ω से अधिक आ रहा हो तब उसका उपचार चारकोल तथा नमक के मिश्रण से किया जाना चाहिए। (सही/गलत)
562. अर्थ पिट में समय-समय पर पानी डालना चाहिए। (सही/गलत)
563. अर्थ पिट रजिस्टेन्स साल के गर्म तथा सूखे मौसम में लिया जाना चाहिए। (सही/गलत)
564. स्विचिंग स्टेशन में सभी अर्थ इलेक्ट्रोड ----- कनेक्शन में जुड़े होते हैं ।
(सीरीज़ , पैरलल)
565. रिमोट कंट्रोल इक्युप्मेन्ट के लिए बनाये गये अर्थ पिट को स्विचिंग स्टेशन के अर्थ पिट / अर्थ ग्रिड से नहीं जोड़ा जाना चाहिए। (सही/गलत)
566. RCE तथा स्विचिंग स्टेशन की अर्थिंग आपस में नहीं जोड़ना चाहिए -
अ) ट्रैक्शन करंट RCE उकरण को खराब कर सकता है।
ब) RCE उपकरण DC सप्लाय पर कार्य करते हैं।
स) ऐसा कोई प्रतिबंध नहीं है।
567. 25 KV सिस्टम में लगे LA की रेटिंग -----
568. 132 केवी के लिए LA की रेटिंग -----
569. 220 केवी के लिए LA की रेटिंग -----
570. LA द्वारा किस असमान्य स्थिती से सुरक्षा मिलती है ?
अ) शॉर्ट सर्किट ब) ओपन सर्किट स) लो-वोल्टेज द) वोल्टेज सर्ज
571. मेगर द्वारा LA की जांच की जाती है। (सही/गलत)
572. लाईन पर लगाने से पहले LA का ----- द्वारा परिक्षण करना चाहिए।
573. LA का POH चार साल के बाद किया जाना चाहिए। (सही/गलत)
574. LA का POH नहीं होता है। (सही/गलत)

575. 42KV LA की मेगरिंग 500 वोल्ट मेगर से की जानी चाहिए।(सही/गलत)

576. 42KV LA का मेगरिंग करने पर मेगर की न्युनतम रीडिंग होनी चाहिए।
(2500 M Ω , 1G Ω , 10G Ω , 200K Ω)

577. 198 KV LA का मेगरिंग करने पर मेगर की न्युनतम रीडिंग होनी चाहिए।
(2500 M Ω , 1G Ω , 10G Ω , 200K Ω)

578. LA सदैव लाईन तथा अर्थ के बीच लगाया जाता है। (सही/गलत)

579. थ्री फेज़ सिस्टम (132 KV) में LA का कनेक्शन दोनो फेज़ के बीच किया जाता है।
(सही/गलत)

580. स्विचिंग स्टेशनों में 25KV बस-बार की जमीन सतह से न्युनतम उंचाई
----- मीटर निर्धारित की गई है।

581. सभी स्विचिंग स्टेशनों में कंट्रोल सर्किट ----- वोल्ट DC पर कार्य करता है।

582. TSS में लगे 100KVA AT का वोल्टेज रेशियो -
अ) 100kv / 230 v ब) 100kv / 440 v
स) 25kv / 230v द) 25kv / 440 v

583. 25 केवी सिस्टम के लिए इलेक्ट्रिकल क्लीयरेंस ----- मि.मी. निर्धारित किया गया है।

584. इनमें से क्या बिना कैटनरी इंडीकेशन आये क्लोज नहीं होता ?
अ) TSS कंट्रोल पैनल का दरवाजा।
ब) SSP का सेक्शनिंग BM
स) HV CB
द) ब्रिजिंग BM

585. 19 KV से कम वोल्टेज होने पर -
अ) यदि ब्रिजिंग BM क्लोज है तो ओपन हो जाता है।
ब) CB कंप्रेसर बन्द हो जाता है।
स) HV / LV CB ट्रिप हो जाते हैं।
द) उपरोक्त में से कोई नहीं।

586. 25kv AC ट्रेक्शन में SSP का पैरेलैलिंग BM SSP ओवरलैप में किस दिशा की OHE को पैरेलल करता है ?
अ) TSS ब) SP स) बीच की OHE द) दोनों दिशा

587. किसी बस-बार कनेक्शन का बदरंग होना किस बात का संकेत है?
अ) कनेक्शन ठीक नहीं है और अधिक गर्म होता है।
ब) कनेक्शन ठीक है और गर्म नहीं होता है।

ब) मौसम का सामान्य प्रभाव है।

द) बस-बार के पदार्थ की गुणवत्ता ठीक नहीं है।

588. बस-बार कनेक्शन को खोल कर साफ करना चाहिए तथा पुनः नट-बोल्ट ठीक तरह से कसे जाने चाहिए, यदि-

अ) CB ट्रिप होती है और WTI का संकेत आता हो।

ब) प्री-मानसून अनुरक्षण कर रहें हौं।

स) बस-बार कनेक्शन बदरंग दिखाई पड़ता हो।

द) उपरोक्त में से कोई नहीं ।

589. किसी TSS के मासिक मीटर रीडिंग से मिलने वाले किन आकड़ों का उपयोग किया जाना चाहिए यदि उस TSS का औसत मासिक PF ज्ञात करना हो-

3) KVAH , KVARH

ब) KVAH, KWH

स) KVA, KVAR

द) KVA , KW

590. किसी TSS के संदर्भ में अर्थ-स्क्रीन शब्द का क्या अर्थ है?

अ) जमीन के नीचे अर्थ-जाली।

ब) अर्थ की हुई फेन्सिंग।

स) एक कॉशन बोर्ड।

द) गैन्ट्री पर टंगा अर्थ-वायर।

591. अन्डर वोल्टेज रिले का संबंध निम्न में से किसके साथ है ?

अ) TSS के सभी BM ।

ब) SSP तथा SP के पैरालेलिंग BM।

स) SSP के सेक्शनिंग BM ।

द) SP के ब्रीजिंग BM ।

592. स्विचिंग यार्ड में बिछाई गई गिट्टी एक ईंसुलेशन का कार्य करती है। (सही/गलत)

593. पावर ट्रांसफॉर्मर को किस प्रकार की सुरक्षा के लिए बुशिंग CT का प्रयोग किया जाता है ।

3H) OCR

ब) DPR

स) EFR

द) DFR

594. डिफरेंशियल प्रोटेक्शन के लिए कितनी CT का प्रयोग किया जाता है ?

अ) LV टरेट CT 2 नग

ब) HV टरेट CT 2 नग

स) HV गैन्ट्री CT तथा LV टरेट CT

द) HV तथा LV टरेट CT

595. डिफरेंशियल प्रोटेक्शन किस प्रकार के फॉल्ट से सुरक्षा प्रदान करता है ?

अ) ट्रांसफॉर्मर के आन्तरिक फॉल्ट

બ) ઓવર વોલ્ટેજ

स) ओवर करंट

द) तेल के लेवल कम होना।

596. OCR-T किससे सुरक्षा प्रदान करता है ?

अ) ओवर लोड के कारण ओवर करंट।

ब) अर्थ फॉल्ट के कारण ओवर करंट।

स) TSS से दूर अर्थ फॉल्ट के कारण ओवर करंट ।

- द) किसी भी कारण से करंट तत्क्षण फुल-लोड करंट के 200 % से अधिक हो जाये।
597. DPR किससे सुरक्षा प्रदान करता है ?
- अ) ओवर लोड के कारण ओवर करंट। ब) TSS से दूर अर्थ फॉल्ट।
- स) अर्थ फॉल्ट के कारण ओवर करंट।
- द) किसी भी कारण से करंट तत्क्षण फुल-लोड करंट के 200 % से अधिक हो जाये।
598. किस रिले को इन-पुट फीड CT तथा PT दोनों से प्राप्त होता है ?
- अ) OCR ब) DPR स) EFR द) DFR
599. डेल्टा- I रिले DPR का बैक-अप प्रोटेक्शन कहा जाता है । (सही / गलत)
600. सभी प्रकार की CB के साथ यह सुविधा रहती है कि उसके ट्रिपिंग करंट के मान को कम या ज्यादा किया जा सके । (सही/गलत)
601. यदि किसी CB के ट्रिपिंग करंट के मान में परिवर्तन करना हो तो किस समायोजन में परिवर्तन करना होगा ?
- अ) ऐसा नहीं किया जा सकता CB बदलना होगा।
- ब) CT बदलना होगा।
- स) रिले सेटिंग में परिवर्तन करना होगा।
- द) बैट्री वोल्टेज बदलना होगा।
602. WPC रिले SP में लगा होता है । (सही / गलत)
603. WPC रिले TSS में लगा होता है । (सही / गलत)
604. WPC रिले की संख्या तथा स्थान के संदर्भ में सत्य कथन -
- अ) SP में एक । ब) SP में दो ।
- स) TSS में एक । द) TSS में दो।
605. अर्थ-स्क्रीन किससे सुरक्षा देता है?
- अ) टच - वोल्टेज। ब) स्टेप-वोल्टेज।
- स) लाईटनिंग-स्ट्रोक। द) अर्थ फॉल्ट।
606. CTD एक ईंटरलॉक व्यवस्था है -
- अ) कथन असत्य है। ब) CB ट्रिप तथा 110वोल्ट कंट्रोल सप्लाई।
- स) CB ऑपरेशन काउंटर तथा ऑटोरिक्लोजर।
- द) हाई-वोल्टेज तथा अलार्म।
607. OCR-I किससे सुरक्षा प्रदान करता है
- अ) ओवर लोड के कारण ओवर करंट।
- ब) अर्थ फॉल्ट के कारण ओवर करंट।
- स) TSS से दूर अर्थ फॉल्ट के कारण ओवर करंट ।

- द) किसी भी कारण से करंट तत्क्षण फुल-लोड करंट के 200 % से अधिक हो जाये।
608. ITR फॉल्ट-सेन्सिंग रिले है । (सही / गलत)
609. ITR रिले ट्रांसफॉर्मर सुरक्षा के लिए सहायक-रिले है। (सही / गलत)
610. निम्न में से कौन ऑटो-रिसेट रिले नहीं है -
 अ) OCR-T ब) DPR स) WPC द) ITR
611. क्या डिफरेंशियल रिले ऑपरेट होने के बाद ट्रांसफॉर्मर को लोड पर लेने के लिए उसकी जांच करना आवश्यक है । (हां / नहीं)
612. PT-I की वोल्टेज रेटिंग -----
613. PT-II की वोल्टेज रेटिंग -----
614. CLS के लिए सामान्यतः प्रयोग होने वाली AT की क्षमता होती है -----KVA.
615. CLS के लिए प्रयोग होने वाले AT का वोल्टेज रेशियो -----।
616. SP/SSP में प्रायः ----- KVA का AT प्रयोग में लाया जाता है।
617. TSS में प्रायः ----- AT लगाये जाते हैं। (1,2,3)
618. TSS में प्रयोग होने 100KVA AT का उपयोग -
 अ) यार्ड लाईटिंग के लिए । ब) स्टैंड बाई।
 स) फिल्टरेशन प्लान्ट के लिए। द) पावर फैक्टर ठीक करने के लिए।
619. कैटनरी इंडीकेशन के लिए सामान्यतः प्रयोग होने वाली PT की रेटिंग-----
620. 10 केवीए AT के लिए DO फ्यूज की रेटिंग ----- होती है।
621. 10 केवीए AT के लिए किट-कैट फ्यूज की रेटिंग ----- होती है।
622. CT के लिए HT - E के बीच मेगर का न्यूनतम मान ----- M Ω
623. CT के लिए LT - E के बीच मेगर का न्यूनतम मान ----- M Ω
624. CT के लिए HT - LT के बीच मेगर का न्यूनतम मान ----- M Ω
625. PT के लिए HT - E के बीच मेगर का न्यूनतम मान ----- M Ω
626. PT के लिए LT - E के बीच मेगर का न्यूनतम मान ----- M Ω
627. PT के लिए HT - LT के बीच मेगर का न्यूनतम मान ----- M Ω
628. AT के लिए HT - E के बीच मेगर का न्यूनतम मान ----- M Ω
629. AT के लिए LT - E के बीच मेगर का न्यूनतम मान ----- M Ω
630. AT के लिए HT - LT के बीच मेगर का न्यूनतम मान ----- M Ω
631. CT के प्राईमरी में टर्न संख्या सेकण्डरी की टर्न संख्या से ----- होती है।
632. PT के प्राईमरी में टर्न संख्या सेकण्डरी की टर्न संख्या से ----- होती है।
633. यदि CT की प्राईमरी चार्ज हो तो सेकण्डरी वाईडिंग ओपन सर्किट नहीं होना चाहिए-

- अ) ऐसा कोई प्रतिबंध नहीं है।
- ब) प्राईमरी वाईडिंग ओवर वोल्टेज हो जाती है।
- स) CT वाईडिंग जल जाती है।
- द) CB क्लोज़ नहीं हो पाती।

634. केबल के भंडारण के लिए सबसे उपयुक्त स्थान-

- अ) नम तथा अंधेरा
- ब) नम तथा सूर्य के प्रकाश में
- स) शुष्क तथा अंधेरा
- द) शुष्क तथा सूर्य के प्रकाश में

635. जमीन में डाली गई केबल का स्थान बताने के लिए किसका उपयोग किया जाता है?

636. केबल बिछाने के लिए केबल ट्रेंच का उपयोग करना चाहिए ; क्यों ?

- अ) अनुरक्षण की सुविधा।
- ब) यांत्रिक सुरक्षा।
- स) बहुत से केबलों के बीच पहचान के लिए।
- द) उपरोक्त सभी।

637. भंडारण के समय केबल के खुले सिरों को प्लास्टिक आदि से लपेट कर बांधना चाहिए।

- अ) ऐसा करना अनावश्यक है।
- ब) ऐसा करना गलत है।
- स) ऐसा अवश्य करना चाहिए।
- द) किसी भी एक सिरे पर ऐसा किया जाना चाहिए।

638. केबल को नमी से बचाने के लिए उसके खुले सिरों को प्लास्टिक से लपेट कर बंद करना चाहिए। (सही / गलत)

639. 70 वर्ग मि.मी. दो कोर केबल कहने से उसके साईज़ के संदर्भ में क्या जानकारी मिलती है ?

- अ) केबल का कुल अनुप्रस्थ क्षेत्रफल 70 वर्ग मि.मी. है।
- ब) प्रत्येक कोर के कंडक्टर की साईज़ 70 वर्ग मि.मी. है।
- स) एक कोर के कंडक्टर की साईज़ 35 वर्ग मि.मी. है।
- द) केबल CLS सप्लाय के लिए प्रयोग होगा।

सही / गलत लिखें

640. CT के सेकण्डरी में फ्यूज़ लगा होता है । (सही/गलत)

641. PT के सेकण्डरी में फ्यूज़ लगा होता है।(सही/गलत)

642. कभी-कभी CT में मात्र सेकण्डरी वाईडिंग ही होती है । (सही/गलत)

643. DO फ्यूज किसकी सुरक्षा के लिए लगाया जाता है। (OHE, AT)

644. क्या DO फ्यूज की सहायता से CT की भी सुरक्षा की जा सकती है। (हां / नहीं)

645. 230 V AT वाईडिंग के मेगर परिक्षण के लिए 500 V मेगर का प्रयोग करना चाहिए।
(सही / गलत)

646. केबल की साईज़ का तात्पर्य उसकी लम्बाई से होता है। (सही/गलत)

647. आरमरिंग केबल को यांत्रिक सुरक्षा प्रदान करने के लिए किया जाता है। (सही/गलत)

648. डिस्चार्ज-रॉड केबल की साईज़ -

अ) मल्टीकोर 40 वर्ग मि.मी.

ब) सिंगलकोर 40 वर्ग मि.मी.

स) मल्टीकोर 20 वर्ग मि.मी.

द) सिंगलकोर 20 वर्ग मि.मी.

649. केबल कोर पर लग ठीक तरह से कसने के लिए कितने स्ट्रैंड काटने की अनुमति है ?

अ) 0

ब) 1

स) 2

द) 3

650. किसी केबल का इंसुलेशन रजिस्टेन्स किन बातों पर निर्भर करता है ?

अ) इंसुलेशन की अवस्था पर।

ब) केबल की लम्बाई पर।

स) इंसुलेशन की मोटाई पर।

द) उपरोक्त सभी पर।

651. केबल कोर लग कसने के लिए किस हैण्ड-टूल का उपयोग किया जाता है?

अ) टॉर्क रिंग

ब) रिंग स्पैनर

स) क्रिम्पिंग-टूल

द) एल-एन की

उत्तरमाला

1. ट्रैक्शन डिस्ट्रीब्युशन
2. 1000 मीटर
3. गलत
4. सही
5. परमीट टु वर्क
6. 1000 मि.मी.
7. 1676 मि.मी
8. 19 KV
9. 40 वर्ग मि.मी.
10. 2 मीटर
11. गलत
12. 4.67 मीटर
13. लेवल क्रॉसिंग गेट पर
14. ब
15. पावर ब्लॉक वर्किंग लिमिट
16. हां
17. हां
18. सही
19. DCP
20. 25M Ω
21. 15.09 (1) b
22. 7
23. अल्टरनेटिव्ह करंट ट्रैक्शन मॅनुअल
24. 1000
25. ब
26. स
27. अ
28. गलत
29. TR-2
30. स
31. अ
32. स

33. सेक्टर
34. सब- सेक्टर
35. सब- सेक्टर
36. सेक्टर
37. सब-सेक्टर
38. स
39. स
40. 5
41. B
42. स
43. अ
44. सही
45. 2
46. द
47. द
48. सही
49. गलत
50. स
51. इंप्लानटेशन
52. 4.30 मीटर
53. 10 से 20
54. 20 से 30
55. 30 से 40
56. 152 X 152
57. 3.00 मीटर
58. 5 एवं 8 मीटर
59. न्यूनतम 3.00 मीटर
60. 72 मीटर
61. 4.75 मीटर
62. क्लियर स्पान पद का उपयोग TTC के संदर्भ में नहीं होता
63. पीला
64. लाल
65. सही

66. लीनिंग मास्ट
67. अ
68. 15 से.मी
69. मास्ट इरेक्शन
70. 5 से 8 से.मी.
71. 2.36 मीटर
72. 2.80 मीटर
73. 27 मीटर
74. 18
75. 30 मि.मी.
76. 4.5
77. 4.5
78. गलत
79. 4
80. 6
81. 8
82. अ
83. ब
84. अ
85. ब
86. स
87. द
88. द
89. 6 "X6 "
90. 6 "X8 "
91. B125, B150, B175
92. 150X300 मि.मी
93. 9.50 मीटर
94. 1350 मि.मी
95. सही
96. सही
97. गलत
98. सही
99. 2.50 मीटर

100. 2.90 मीटर
101. सही
102. सही
103. गलत
104. द
105. गलत
106. सही
107. 63 मीटर
108. 30 मीटर
109. सही
110. क्रीपेज डिस्टेन्स
111. द
112. सही
113. स
114. चीनी मिट्टी
115. 3
116. हां
117. अ
118. लॉग-क्रीपेज डिस्टेन्स
119. विशेष प्रकार का रबर
120. 6930 कि.ग्रा
121. 4900 कि.ग्रा.
122. ख
123. द
124. द
125. आइसोलेटर ऑपरेशन
126. स
127. 500 मिमी
128. सही
129. सही
130. SM
131. SS
132. सही

133. स
134. स
135. द
136. 800 ,1250
137. सही
138. द
139. गलत
140. बाल्मेरोल-100
141. 10.5
142. 8.5
143. 10.5
144. 8.5
145. 250
146. 415
147. 1:5
148. 2.50 मीटर
149. गलत
150. 1:5
151. 1:3
152. श्री पुली टाईप ; SS रोप के स्ट्रैंड टूटने की संभावना न के बराबर है।
153. अ
154. सही
155. टर्न-आऊट, क्रॉसओवर
156. 500 मि.मी
157. 3.00 मीटर
158. 200 मि.मी.
159. स
160. 54
161. 1.40 मीटर
162. 300 मि.मी.
163. 1.90/2.00 मीटर
164. 40/49 मि.मी
165. ईक्मब्रेन्स
166. 30 से.मी
167. 32x31 मिमी

168. 5.6 मीटर
169. 4 साल
170. 8
171. 40X6 मि.मी
172. सही
173. 350 मीटर
174. 200 वर्ग मि.मी.
175. गलत
176. 3.74 मीटर
177. द
178. द
179. अ
180. 50मि.मी
181. अ
182. अ
183. शून्य
184. 450 मि.मी.
185. 220 मि.मी.
186. 40x8 मि.मी
187. गलत
188. 1500 मीटर
189. 6.75 मीटर
190. 65 वर्ग मि.मी
191. स्पार्क लोकेशन
192. सतत 600 Amp.
193. 6.95 मीटर
194. 5.80 मीटर
195. 350 मीटर
196. 1600 मीटर
197. न्यूनतम 250 मि.मी.
198. ट्राम वे
199. गलत

- 200. सही
- 201. 20 मि.मी.
- 202. नहीं
- 203. ब
- 204. स
- 205. स
- 206. 107
- 207. 12.24 मि.मी
- 208. 8.25 मि.मी.
- 209. 8.00 मि.मी.

PSI

- 210. एम्पीयर
- 211. वोल्ट
- 212. ओहम
- 213. विद्युत धारा
- 214. विद्युत विभव
- 215. प्रतिरोध
- 216. विद्युत धारा
- 217. विद्युत विभव
- 218. प्रतिरोध
- 219. करंट, वोल्टेज, रजिस्टेन्स
- 220. मेगा ओहम
- 221. मेगर
- 222. इंसुलेशन रजिस्टेन्स
- 223. इंसुलेशन रजिस्टेन्स
- 224. दस लाख ओहम
- 225. सीरीज़
- 226. सामानान्तर
- 227. 1000 मीटर
- 228. 100
- 229. 10
- 230. 12
- 231. 2.54

232. KWH
233. वाट
234. यांत्रिक शक्ती
235. यांत्रिक शक्ती
236. 746
237. रेक्टीफायर
238. इनवर्टर
239. 1
240. 0.88
241. 27.5
242. 19
243. अनंत
244. 2
245. प्लान
246. एलीवेशन
247. स
248. द
249. ब
250. स
251. द
252. उत्तर-दक्षिण
253. अ
254. स
255. ब
256. द
257. स
258. द
259. Y
260. स
261. C
262. द
263. ब
264. 3
265. द

266. अ
267. 19
268. अ
269. स
270. ब
271. स
272. खलासी
273. TR-2
274. ब
275. द
276. द
277. स
278. TR-7
279. द
280. द
281. सही
282. सही
283. गलत
284. गलत
285. सही
286. सही
287. गलत
288. गलत
289. सही
290. सही
291. गलत
292. सही
293. गलत
294. गलत
295. सही
296. गलत
297. गलत
298. गलत

299. सही
300. सही
301. सही
302. गलत
303. गलत
304. सही
305. बैटरी
306. 2.2
307. रासायनिक
308. DC
309. रेक्टिफायर
310. बैटरी चार्जिंग
311. 2.2 वोल्ट
312. 1.8 वोल्ट
313. आसूत जल
314. गंधक का अम्ल
315. 1.220
316. 1.180
317. AH(एम्पीयर-आवर)
318. वोल्टेज
319. क्षमता
320. क्षमता
321. 15
322. 0.0007
323. 27 °C
324. डिस्टिल वाटर
325. ट्रिकल चार्जिंग
326. बूस्ट
327. कांच या पोर्सीलीन
328. सल्फेशन
329. खराब
330. बढ़ती है
331. घटती है
332. 200

333. 40
334. 40
335. हाईड्रॉमीटर
336. अ
337. अ
338. ब
339. अ
340. द
341. द
342. गलत
343. सही
344. गलत
345. सही
346. सही
347. गलत
348. गलत
349. सही
350. गलत
351. सही
352. गलत
353. सही
354. सही
355. गलत
356. गलत
357. गलत
358. सही
359. गलत
360. गलत
361. सही
362. सही
363. गलत
364. सही

365. सही
366. गलत
367. सही
368. सही
369. गलत
370. सही
371. गलत
372. गलत
373. सही
374. सही
375. गलत
376. गलत
377. गलत
378. सही
379. गलत
380. सही
381. सही
382. गलत
383. गलत
384. सही
385. सही
386. गलत
387. गलत
388. सही
389. KVA, MVA
390. 2
391. आसमानी नीला
392. गुलाबी
393. 60KV
394. साफ पारदर्शी
395. बुकोल्ज़ रिले
396. काला
397. स

- 398. स
- 399. PRD
- 400. MOLG
- 401. रेडीयेटर
- 402. आयरन+कॉपर लॉस
- 403. कॉपर लॉस
- 404. आयरन लॉस
- 405. ट्रांसफॉर्मेशन रेशियो
- 406. करंट
- 407. ppm
- 408. 10
- 409. 400M Ω
- 410. 2000M Ω
- 411. 2500M Ω
- 412. 15
- 413. 50 %
- 414. 5
- 415. 100 %
- 416. 80
- 417. 85
- 418. 90
- 419. 95
- 420. ऑफ लोड
- 421. ट्रांसफॉर्मेशन रेशियो
- 422. ज्वलनशील
- 423. स
- 424. अ
- 425. अ
- 426. स
- 427. ब
- 428. अ
- 429. 0.007
- 430. 110
- 431. द
- 432. द
- 433. स

434. ब
435. अ
436. स
437. ब
438. द
439. अ
440. द
441. ब
442. स
443. अ
444. गैसों
445. स
446. ब
447. गलत
448. द
449. द
450. द
451. गलत
452. स
453. द
454. ब
455. अ
456. 2.5
457. अ
458. सही
459. स
460. हां
461. हां
462. गलत
463. गलत
464. सही
465. सही

466. गलत
467. सही
468. गलत
469. सही
470. सही
471. सही
472. गलत
473. गलत
474. गलत
475. सही
476. गलत
477. गलत
478. सही
479. गलत
480. सही
481. सही
482. सही
483. गलत
484. सही
485. सही
486. गलत
487. सही
488. सही
489. गलत
490. सही
491. गलत
492. सही
493. सही
494. गलत
495. सही
496. गलत
497. सही

498. गलत
499. गलत
500. सेक्टर
501. सब- सेक्टर
502. एलीमेन्ट्री सेक्शन
503. CB
504. आइसोलेटर
505. DPI
506. द
507. 500मि.मी.
508. SM
509. SS
510. 1600
511. 800
512. 800/1250
513. इंसुलेटिंग रॉड
514. SF6
515. 65ms
516. 80ms
517. अ
518. द
519. द
520. ह
521. 5Kg/cm^2
522. 4.5 Kg/cm^2
523. 4.0 Kg/cm^2
524. गैस डेन्सिटी स्विच
525. स
526. गैस प्रेशर गेज़
527. 15 Kg/cm^2
528. 13 Kg/cm^2
529. 12 Kg/cm^2
530. ब
531. सेफ्टी वॉल्व
532. 20°C
533. सही
534. गलत

- 535. सही
- 536. गलत
- 537. सही
- 538. सही
- 539. सही
- 540. सही
- 541. गलत
- 542. सही
- 543. सही
- 544. सही
- 545. गलत
- 546. सही
- 547. सही
- 548. सही
- 549. सही
- 550. सही
- 551. गलत
- 552. 0.5Ω
- 553. 2Ω
- 554. 2Ω
- 555. 10Ω
- 556. 0
- 557. 4
- 558. 4
- 559. 6
- 560. गलत
- 561. सही
- 562. सही
- 563. सही
- 564. पैरलल
- 565. सही
- 566. अ
- 567. 42KV
- 568. 120KV

- 569. 198KV
- 570. द
- 571. सही
- 572. मेगर
- 573. गलत
- 574. सही
- 575. गलत
- 576. $1\text{ G } \Omega$
- 577. $10\text{ G } \Omega$
- 578. सही
- 579. गलत
- 580. 3.80
- 581. 110
- 582. स
- 583. 250
- 584. द
- 585. अ
- 586. ब
- 587. अ
- 588. स
- 589. ब
- 590. द
- 591. द
- 592. सही
- 593. द
- 594. द
- 595. अ
- 596. अ
- 597. ब
- 598. ब
- 599. सही
- 600. गलत
- 601. स

602. गलत
603. सही
604. द
605. स
606. ब
607. द
608. गलत
609. सही
610. द
611. हां
612. 25KV / 100V
613. 25KV / 110V
614. 10
615. 25KV/230v
616. 10 KVA
617. 2
618. स
619. 25KV / 100 V
620. 1 एम्पीयर
621. 63 एम्पीयर
622. 200MΩ
623. 2MΩ
624. 200MΩ
625. 200MΩ
626. 2MΩ
627. 200MΩ
628. 200MΩ
629. 2MΩ
630. 200MΩ
631. कम
632. अधिक
633. स्
634. स
635. रूट-ईंडिकेटर
636. द

- 637. स
- 638. सही
- 639. ब
- 640. गलत
- 641. सही
- 642. सही
- 643. AT
- 644. नहीं
- 645. सही
- 646. गलत
- 647. सही
- 648. ब
- 649. अ
- 650. द
- 651. स
- 652.

प्रारंभिक तकनीशीयन / पुनःश्रयता तकनीशीयन OHE
Initial and Refresher Technician OHE

अ. एक वाक्य मे उत्तर दें ।

(2 अंक)

A. Answer in one sentence.

(2 marks)

1. फाउंडेशन क्या है ? किन्ही दो के नाम लिखें।
1. What is foundation? Name any two.
2. बॉण्ड क्या है ? किन्हीं दो के नाम लिखें ।
2. What is Bond? Name any two.
3. इंसुलेटर से आप क्या समझते हैं।
3. What do you mean by insulator?
4. OHE के प्रकार बताइये ।
4. State types of OHE.
5. मास्ट के प्रकार लिखें ।
5. State types of mast.
6. OHE मे उपयोग होने वाले PG क्लैम्प का नम्बर लिखें ।
6. State the number of PG clamps mostly used in OHE.
7. न्यूट्रल सेक्शन के प्रकार लिखें ।
7. State types of Neutral Section.
8. पावर ब्लॉक के प्रकार लिखें ।
8. State types of Power Block.
9. आइसोलेटर क्या है।
9. What is Isolator?
10. ATD का कौन- कौन सा अनुरक्षण कब-कब किया जाता है।
10. State the maintenance schedule of ATD.
11. ओलीवर – जी ?
11. Oliver-G?
12. थर्मोग्राफी ?
12. Thermography?
13. वर्किंग क्लियरेंस ?
13. Working Clearance?
14. इलेक्ट्रीकल क्लियरेंस ?
14. Electrical Clearance?
15. स्टैगर ?
15. Stagger?
16. औब्लीगेट्री मास्ट ?

16. Obligatory Mast?
17. इंप्लानटेशन ?
17. Implantation?
18. इंकम्ब्रेंस ?
18. Encumbrance?
19. स्टेडी आर्म क्लियरेंस ?
19. Steady Arm Clearance?
20. OHE ग्रेडियंट?
20. OHE Gradient?
21. क्लियर स्पान ?
21. Clear Span?
22. स्टैण्डर्ड स्पान ?
22. Standard Span?
23. एलीमेंट्री सेक्शन ?
23. Elementary Section?
24. सब – सेक्टर ?
24. Sub-Sector?
25. क्रॉस फीडर ?
25. Cross Feeder?
26. पावर लाइन क्रॉसिंग ?
26. Power Line Crossing?
27. वर्ग B आग ?
27. Group B Fire?
28. लीनिंग मास्ट ?
28. Leaning Mast?
29. बी-150 ?
29. B-150 ?

ब. संक्षिप्त टिप्पणी लिखें ।

(5 अंक)

B. Write short notes.

(5 marks)

1. इंसुलेटर टेस्ट करने की विधि लिखें ।
1. Insulator Testing.
2. एटीडी पीओएच करने की विधि लिखें ।
2. ATD POH.
3. ड्रॉपर से आप क्या समझते हैं ? 72 मीटर स्पान में ड्रॉपरों की स्थिति बतायें ।
3. What do you mean by dropper? State the position of droppers in 72mt span.

4. पावर ब्लोक क्या है ? इसके प्रकार बतायें? इमरजेंसी पावर ब्लॉक की जरूरत स्पष्ट करें।
4. Define power block, its types and clarify Emergency Power Block.
5. पैदल गश्त ।
5. Foot Patrolling.
6. सेक्शन इंसुलेटर का अनुरक्षण ।
6. Section Insulator maintenance.
7. किसी सब-सेक्टर के लिए पावर ब्लॉक प्राप्त करने तथा रद्द करने का संदेश ।
7. Write the telephonic message to have PTW on a Sub-Sector and to cancel it.
8. लैंडर से कार्य करते समय क्या-क्या सावधानी रखनी चाहिए ।
8. Precautions to use ladder while working on OHE.
9. करंट कलेक्शन टेस्ट ।
9. Current collection test.
10. डिस्चार्ज रॉड की जांच तथा लगाने की विधि ।
10. How to inspect and apply a discharge rod.
11. विद्युत दुर्घटना होने पर कार्यवाही।
11. Action to be taken on Electrical Accident.
12. इंसुलेटेड / अन-इंसुलेटेड ओवर लैप में अंतर लिखें।
12. Compare Insulated /Un-Insulated over laps.
13. रेगुलेटेड / अन रेगुलेटेड OHE का अंतर स्पष्ट करें ।
Compare Regulated / Un-regulated OHE.
14. आग ?
14. Fire ?
15. एलीमेंट्री सेक्शन ?
Elementary- Section ?
16. लीनिंग मास्ट ।
16. Leaning Mast.
17. स्प्लाइस ।
17. Splice.
18. इमरजेंसी मास्ट .
18. Emergency mast.
19. कॉशन बोर्ड ।
19. Caution Board
20. बॉण्ड ।
20. Bond.

स. विस्तार से उत्तर लिखें । (10 अंक)

C. Answer in details. (10 marks)

1. पैदल गश्त की कार्य विधी ।
1. Explain Foot-Patrolling.
2. OHE का अनुअरक्षण कार्यक्रम बताते हुए वार्षिक अनुअरक्षण का वर्णन करें ।
2. State Maintenance schedule of OHE and explain AOH.
3. एटीडी पीओएच करने की विधी लिखें ।
3. Explain the procedure of POH of ATD.
4. आयसोलेटर का प्रकार लिखें तथा अर्थिंग- हील आइसोलेटर का अनुअरक्षण लिखें ।
4. State the types of Isolator and explain the maintenance of Earthing Heal Isolator.
5. 3-पुल्ली एटीडी का नामांकित रेखाचित्र बनायें।
5. Draw a labeled drawing of 3 pulley ATD .
6. ब्रैकेट असेम्बली का नामांकित रेखाचित्र बनायें ।
6. Draw a labeled drawing of Cantilever.
7. OHE का सेक्शनिंग डायग्राम बनायें तथा OHE खण्डों में अंतर स्पष्ट करें।
7. Draw sectioning diagram of OHE and differentiate the electrical sections.
8. टर्न –आउट के अनुअरक्षण में जांच के मद तथा कार्य विधी लिखें ।
8. State the items of maintenance of a turn-out.
9. ओवर लैप के प्रकार बताते हुए किसी एक का रेखा चित्र बनायें ।
9. State the types of Over lap and draw any one of them.
10. न्युट्रल सेक्शन का परिचय देते हुए PTFE का अनुअरक्षण लिखें ।
10. Explain Neutral section and maintenance of PTFE neutral section.
11. सेक्शन इसुलेटर का नामांकित रेखा चित्र बनाये तथा लगाने के लिए स्थान का चुनाव करने के संबंध मे बतायें ।
11. Draw a labeled drawing of the section insulator and state the points to be considered while selecting location to install it.
12. 3 पुली एटीडी तथा विंच टाइप एटीडी में आप किसे और क्यों बेहतर मानते हैं; 3 पुली एटीडी का अनुअरक्षण लिखें।
12. Which type of ATD do you find better out of 3Pulley and Winch type ; also state the maintenance of 3 pulley ATD.
13. 25 केवी क्षेत्र मे सुरक्षा को विस्तार से समझायें।
13. Explain safety in 25 KV territory.
14. ओएचई मे प्रयोग होने वाले विभिन्न प्रकार के सपोर्ट स्ट्रक्चर का वर्णन करें तथा किसी मास्ट को खडा करने की विधी लिखें.
14 State the various types of support structure used in OHE and explain the erection of a mast.

- **Write full form –**

TRD, TPC, KWH, EPR, BX, CB, BM, BC, CEE, CEDE, TSS, SSP, SP, SPI, DPI, BPI, AT, LA, PTW, LOP, SED, ACC, ACA, FTA, BWA, ATD, BFB, RSJ, PTFE, TTC, DA, RRA, BT, ST, RT, RL, SI, TKM, IOL, EIG, RDSO, CAMTECH, ACTM, OOR, IR, T/O, X/O, LV, HV, EHV, PB, FOB, ROB, DJ, ODC, DCP. ART, SWR.

OHE

1. विस्तार से उत्तर लिखें-
 - 1 कैंटीलीवर असेम्बली का नामांकित रेखा चित्र बनायें तथा विभिन्न मापांको को दर्शायें।
 - 2 सेक्शनिंग डायग्राम बनायें तथा सेक्टर ,सब-सेक्टर तथा एलीमेंट्री सेक्शन की परिभाषा लिखें।
 - 3 OHE का अनुरक्षण कार्यक्रम लिखें तथा पैदल गस्त का वर्णन करें।
 - 4 OHE अनुरक्षण में उपयोग होने वाले टूल-टैकल्स के नाम तथा उनके उपयोग लिखें।
 - 5 पावर ब्लॉक लेने तथा कार्य करने की विधी लिखें।
 - 6 25 केवी. क्षेत्र में कार्य के दौरान ली जाने वाली सावधानियां लिखें।
 - 7 3 स्पान इंसुलेटेड तथा अनइंसुलेटेड ओवरलैप को रेखाचित्र द्वारा समझायें।
 - 8 टर्न-आउट का अनुरक्षण लिखें।
 - 9 मास्ट खड़ा करने की विधी लिखें।
 - 10 एक टेंशन लेंथ OHE लगाने की विधी लिखें।
 - 11 OHE का वार्षिक अनुरक्षण लिखें।
 - 12 OHE का आवधिक अनुरक्षण लिखें।
 - 13 आइसोलेटर ऑपरेट करते समय सावधानी तथा आइसोलेटर का अनुरक्षण लिखें।
 - 14 ATD के विभिन्न अंगों के नाम लिखें तथा अनुरक्षण लिखें।
 - 15 OHE में उपयोग होने वाले विभिन्न इंसुलेटरों के नाम लिखें तथा इंसुलेटरों के संबंध में ली जाने वाली सावधानियां लिखें।
 - 16 रेग्युलेटेड / अन-रेग्युलेटेड OHE से आप क्या समझते हैं? लिखें।
 - 17 न्युट्रल सेक्शन को समझाते हुए उसका अनुरक्षण लिखें।
2. संक्षिप्त टिप्पणी लिखें-
 1. जम्पर
 2. सेक्शन इंसुलेटर
 3. मास्ट तथा उनकी साइज
 4. पोर्टल
 5. स्टैंडर्ड/नॉन स्टैंडर्ड स्पान
 6. बॉण्ड
 7. कॉशन बोर्ड
 8. एलीमेंट्री सेक्शन
 9. बिजली का झटका लगने पर कार्यवाही
 10. लीनिंग मास्ट
 11. PTFE न्युट्रल सेक्शन

12. 3पुली एटीडी के लाभ
13. ओवर लैप
14. OHE में उपयोग होने वाले विभिन्न कंडक्टर के नाम तथा साईज लिखो
15. इंप्लांटेशन
16. ऑ एच ई की हाईट
17. स्प्लाइस
18. रेग्युलेटेड /अन रेग्युलेटेड OHE में अंतर
19. आग
20. PG क्लैम्प
21. ATD
22. स्टैगर
23. इंकम्ब्रेश
24. ऑब्लीगेट्री मास्ट
25. TTC
26. ट्रॉम-वे OHE
27. इंसुलेटेड/अन-इंसुलेटेड OHE अंतर लिखें

पुनःश्रव्या तकनीशीयन/ प्रारंभिक तकनीशियन PSI(Refresher Technicians/ Initial Technicians- PSI)

- विस्तार से उत्तर लिखें-(प्रत्येक प्रश्न 10 नम्बर)
 - Answer in details-(each question marks -10)
1. 132 केवी/25 केवी टी एस एस का रेखी चित्र बनायें तथा उपकरणों के नाम लिखें।
 1. Draw a schematic diagram of 132kv/25kv TSS and indicate the name of equipments.
 2. पी एस आइ का अनुरक्षण कार्यक्रम लिखें तथा उनमें किये जाने वाले कार्यों की सूची लिखें।
 2. State the maintenance schedule of PSI and enlist the activities done.
 3. ट्रैक्शन ट्रांसफॉर्मर के अंगों के नाम लिखें तथा उनके कार्य लिखें।
 3. State the parts name of traction transformer and their work.
 4. ट्रांसफॉर्मर ऑयल के गुण धर्म तथा उपयोग बताते हुए ऑयल सैम्पल लेने की विधि लिखें।
 4. Write the properties of Transformer oil and the state the method of oil sampling.
 5. एस एफ 6 सी बी का अनुरक्षण लिखें।
 5. State the maintenance of SF6 Circuit Breaker.
 6. ओ एच ई का सेक्शनिंग डायग्राम बनायें तथा सेक्टर, सब सेक्टर व एलीमेंट्री सेक्शन बताते हुए इनमें अंतर लिखें।
 6. Draw the sectioning diagram of OHE, indicate Sector, Sub-Sector, Elementary section and state the difference among them.
 7. पावर ट्रांसफॉर्मर का पी ओ एच लिखें।
 7. State the POH OF Power Transformer.
 8. टी एस एस में कौन कौन से सुरक्षा साधन / उपाए किये जाते हैं उनका वर्णन करें।
 8. State the safety items and provisions made in a TSS.
 9. पी एस आइ विभाग में कार्य के दौरान सावधानियों का वर्णन करें।

9. State the safety will you observe while working in a PSI gang.
10. अर्थिंग का महत्व बतायें तथा एक अर्थ पिट का रेखा चित्र बनायें।
10. Draw the schematic diagram of a Earth Pit and explain the importance of earthing.
11. टी एस एस में कौन कौन से सुरक्षा रिले लगे होते हैं ,उनके नाम तथा उनका कार्य लिखें।
11. Enlist the protective relays that are provided in a TSS with their purpose.
12. नये बैटरी सेट तैयार करने की कार्यविधि लिखें।
12. Explain the method to prepare a new batter set .
13. लेड एसिड बैटरी की बनावट बताते हुए बैटरी अनुरक्षण का विधीवत वर्णन करें।
13. State the parts name of a lead-acid battery and write the systematic method of its maintenance.
14. टी एस एस में अर्थिंग व्यवस्था का वर्णन करें।
14. Explain the earthing arrangement adopted in a TSS.
15. एस पी के वार्षिक अनुरक्षण की क्रिया विधी का वर्णन करें।
15. Explain the Yearly Maintenance of a SP.

- संक्षिप्त टिप्पणी लिखें- (प्रत्येक प्रश्न 5 नम्बर)
- Write Short Notes- (each question marks 5)

1. एस पी का रेखा चित्र बनायें |
1. Draw a schematic diagram of a SP.
2. एस. एस पी. का रेखा चित्र बनायें।
2. Draw a schematic diagram of a SSP.
3. टी एस एस में कॉन कॉन सी इंटर लॉक का प्रयोग किया गया है तथ उनका क्या उपयोग है।
3. List the interlocks adopted in a TSS and explain.
4. एस एफ 6 गैस सीबी के पोल युनिट में किस प्रकार भरी जाती है।

4. What is the procedure to fill the SF6 gas in the pole unit of a CB?
5. सीबी के प्रकार बताते हुए एस एफ 6 सीबी के पार्ट्स के नाम लिखें |
5. State the various types of CB being used on Indian Railway and enlist the parts name of SF6 type CB.
6. आइसोलेटर
6. Isolator.
7. सीबी / बीएम मे अंतर लिखें |
7. Differentiate CB and BM.
8. सीटी/पीटी मे अंतर लिखें |
8. Differentiate CT and PT.
9. टी एस एस के आर टी यू मे कौन कौन से कार्ड लगे होते हैं |
9. Enlist the cards that are in TRU of a TSS.
10. डिस्चार्ज रॉड लगाने की विधि लिखें |
10. State the procedure of Discharge Rod application.
11. ऑग्सिलरी ट्रांसफॉर्मर का अनुरक्षण लिखें |
11. State the maintenance of Auxiliary Trancformer.
12. इलेक्ट्रीकल एक्सीडेंट तथा इलेक्ट्रीकल ब्रेक डाउन से आप क्या समझते हैं?,
इलेक्ट्रीकल एक्सीडेंट पर क्या कार्यवाही की जाती है |
12. What do you understand by Electrical Accident and Electrical Break Down?
State the actions that shall be taken on a Electrical Accident.
13. बुकोल्ज रिले |
13. Buccholtz Relay.
14. रेखा चित्र बना कर ईपीआर लेने की विधि लिखें |
14. Explain the method of EPR measurement through a diagram.
15. रेखा चित्र के माध्यम से बीडीवी लेने की विधि लिखें |
15. Explain the method of BDV measurement through a diagram
16. लाइटनिंग अरेस्टर |
16. Lightening Arrester.

17. पावर ट्रांसफॉर्मर का मेगर किस प्रकार किया जाता है।

17. Procedure to be adopted for Meggering a Power Transformer.

18. ट्रांसफॉर्मर की क्षमता बताने की इकाई क्या है और उससे क्या जानकारी मिलती है।

18. What is the unit of Capacity of Transformer? What information you receive from it.

19. करंट ट्रांसफॉर्मर।

19. Current Transformer.

20. पोटेंशियल ट्रांसफॉर्मर।

20. Potential Transformer.

21. अर्थ रजिस्ट्रेशन नापने का उपकरण, विभिन्न स्थानों पर ईपीआर का मान, तथा आवश्यक कार्यवाही।

21. Name the meter to measure EPR, values of EPR at various installations, and action required if the values are unacceptable.

22. पी एस आइ में उपयोग होने वाले विभिन्न मेजरिंग मीटर के नाम तथा उपयोग लिखें।

22. Enlist the name of Measuring Meters used in PSI organization with their usages.

- संक्षिप्त उत्तर लिखें। (प्रत्येक प्रश्न 3 नम्बर)
- Answer in Short (each question marks 3)

1. एस एफ 6 गैस के गुण धर्म लिखें।

1. State the properties of SF₆ gas.

2. ओहम का नियम लिखें।

2. State Ohm's Law.

3. एल ए का कार्य तथा 132 केवी के लिए रेटिंग लिखें।

3. Working of a LA and rating suitable for 132 Kv.

4. बैटरी सेट में कौन कौन सी खराबी हो सकती है।

4. What defects do you expect in a battery set?

5. टी एस एस में सीटी तथा पीटी क्यों लगाया जाता है।

5. Why CT and PT is there in a TSS.

6. आग का वर्गीकरण लिखें।

6. Classify fire.
7. इंसुलेटिंग मटेरियल को खराब करने वाले कारक कौन कौन से हैं।
8. What are the factors that are responsible for deterioration of insulating materials?
8. ब्रिजिंग बी एम ?
8. Bridging BM?
9. पावर लाइन क्रॉसिंग?
9. Power Line Crossing?
10. कम्पीटेंसी सर्टीफिकेट ?
10. Competency Certificate?
11. एम्पीयर आवर से आप क्या समझते हैं?
11. What do you mean by Ampear Hours?
12. सीटी रेशियो से आप क्या समझते हैं?
12. What do you mean by CT ratio.?
13. रेखा चित्र द्वारा 70 वर्ग मि.मी.टू कोर आर्मर्ड केबल को स्पष्ट करें।
13. Explain through a line diagram that 70sq.mm, 2 cores, armored cable.
14. 100 वाट का बल्ब यदि 10 घंटे तक जले तो विद्युत खपत ?
14. What electrical energy shall be consumed if a 100 watt bulb is lit for 10 hrs?
15. 4ओहम के दो प्रतिरोध सीरीज , पैरलल में जोड़ेजाने पर कुल प्रतिरोध का मान?
15. What shall be the total resistance if two resistances of 4 ohms are connected in series, parallel?
16. सीटी के सेकण्डरी में फ्यूज क्यों नहीं होता ?
16. Why there is no Fuse in secondary of a CT?
17. थर्मोग्राफी।
17. Thermography.
18. अर्थ ग्रिड

18. Earth Grid.

19. बॉण्ड

19. Bond.

20. रेक्टिफायर

20. Rectifier.

- एक वाक्य में उत्तर लिखें। (प्रत्येक प्रश्न 2 नम्बर)
- Answer in a sentence. (each question marks 2)

1 सी एल एस के लिए एटी तथा केबल की रेटिंग।

1. Rating of AT and Cable used for CLS.

2 केबल में आर्मरिंग का क्या उपयोग है।

2. Purpose of Armoring of a Cable.

3 पावर फैक्टर को अच्छा करने के लिए क्या करते हैं?

3. What is used to improve Power Factor?

4 पीटी टाइप वन की वोल्टेज रेटिंग तथा उपयोग।

4. Voltage Rating and purpose of PT-I.

5 पीटी टाइप टू की वोल्टेज रेटिंग तथा उपयोग।

5. Voltage Rating and purpose of PT-II.

6 प्राइमरी इंजेक्शन टेस्ट ?

6. Primary Injection Test?

7 सेकण्डरी इंजेक्शन टेस्ट ?

7. Secondary Injection Test?

8 डी ओ फ्यूज ?

8. D. O Fuse?

9 केबल ट्रेंच ?

9. Cable Trench?

10 अर्थ स्क्रीन ?

10. Earth Screen?

11 पावर ट्रांसफॉर्मर का मेगर वैल्यु|

11. Megger value of power transformer.

12 ऑग्सिलरी ट्रांसफॉर्मर का मेगर वैल्यु|

12. Megger value of AT.

13 सीटी का मेगर वैल्यु|

13. Megger value of CT.

14 पीटी का मेगर वैल्यु|

14. Megger value of PT.

15 रजिस्टेंश का सीरीज कनेक्शन|

15. Series connection of resistances.

16 रजिस्टेंश का पैरलल कनेक्शन|

16. Parallel connection of resistances.

17 ओ सी आर

17. OCR.

18 डी पी आर

18. DPR.

19 पैंटो फ्लैश रिले

19. Panto flash.

20 बरीड रेल

20 Buried Rail.

21 ई आइ जी

21. EIG

22. आइ ई रूल

22. IE Rules

23. ए सी टी एम

23 ACTM

24. गैंट्री

24. Gantry.

25. क्रैकल टेस्ट.

25. Crackle Test.

- **Write full form –**

TRD, TPC, SCADA, UPS, KWH, IR, PI, EPR, ONAN, PPM, OCR, DPR, EFR, BX, CB, NO, NC, MODEM, CPU, RSD, BM, BC, CEE, CEDE, ITR, TSS, SSP, SP, SPI, DPI, BPI, SF6, MOLG, PRD, AT, CT, PT, BDV, AH, KVA, MΩ, HRC, XLPE, MVA, mA, LA, PTW,

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CHAPTER 1**ABBREVIATIONS & ELECTRICAL TERMS RELATED TO OHE**

- 1.1 ACTM
(a) AC Train Manual (b) AC Traction Manual
(c) AC Traffic Manual (d) AC Training Manual
- 1.2 GR & SR
(a) General Rules & Subsidiary Rules (b) General Rules & Safety Rules
(c) Grand Rules & Subsidiary Rules (d) Grand Rules & Safety Rules
- 1.3 AFTC
(a) Auto Frequency Track Circuit (b) Auto Frequency Track Control
(c) Advanced Frequency Track Circuit (d) Audio Frequency Track Circuit
- 1.4 CLW
(a) Carriage Locomotive Workshop (b) Carriage Locomotive Works
(c) Chittarangan Locomotive Workshop (d) Chittarangan Locomotive Works
- 1.5 COFMOW
(a) Centre For Modernization of Workshop
(b) Combination of Frequency Modulation & Output Wattage
(c) Council for Modernization of Workshop
(d) Central Organization for Motivation of Workers
- 1.6 CORE
(a) Centre For Rural Electrification
(b) Central Organization for Railway Electrification
(c) Co-Related
(d) Centre of Research & Economy
- 1.7 CRIS
(a) Central Research Institute of Safety (b) Centre For Railway Information System
(c) Central Research Institute of Savings (d) Centre for Railway Instruments & Standard
- 1.8 DCW
(a) Diesel Component Works (b) Direct Carrier Wagons
(c) Diesel Component Workshop (d) Diesel Carriage Workshop
- 1.9 DLW
(a) Dummy Loco Wagon (b) Directorate for Revenue & Wages
(c) Diesel Loco Works (d) Diesel Loco Workshop

- 1.10 PNM
 (a) Partially Negotiating Machinery (b) Powerful Nations Machinery
 (c) Popular Negotiating Machinery (d) Permanent Negotiating Machinery
- 1.11 PREM
 (a) Permanent Railways Employees Machinery
 (b) Permanent Railways Electrification Machinery
 (c) Permanent Railways Employees Management
 (d) Participation of Railways Employees in Management
- 1.12 RCF
 (a) Rail Coach Factory (b) Railway Committee for Fund
 (c) Railway Consumer Federation (d) Railway Committee for Finance
- 1.13 RCT
 (a) Railway Compensation Tribunal (b) Railway Claims Tribunal
 (c) Research for Curve Tracks (d) Railway Copyright & Trademark
- 1.14 RDSO
 (a) Research Design & Standard Organization
 (b) Revenue for Direct Supply Order
 (c) Railway, Design & Standard Organization
 (d) Research, Design & Specification Organization
- 1.15 RITES
 (a) Railway Institute for Technical & Economical Services
 (b) Railway India Technical & Economical Services
 (c) Railway India Trading & Economical Services
 (d) Railway India Technical & Engineering Services
- 1.16 RRB
 (a) Railway Research Board (b) Railway Recruitment Board
 (c) Railway Rehabilitation Board (d) Rail & Road Board
- 1.17 RSC
 (a) Railway Scientific Committee (b) Research For Steel Coaches
 (c) Railway Staff College (d) Railway Staff Committee
- 1.18 SCADA
 (a) Supervisor Control & Data Acquisition
 (b) Supervisor Computer & Data Acquisition
 (c) Supervisor Control & Discipline Act
 (d) Super Computer & Data Acquisition

- 1.19 WAP
 (a) Wheel Automatic Plant (b) Wheel & Axle Plant
 (c) Wagon & Axle Plant (d) Workshop Advanced Plan
- 1.20 ZRUCC
 (a) Zonal Railway Users Consultative Committee
 (b) Zonal Railway United Consultative Committee
 (c) Zonal Restructure United Consultative Committee
 (d) Zonal Railway Users Consultative Council
- 1.21 ICF
 (a) Industrial Coach Factory (b) Intermediate Communication Frequency
 (c) Indian Coach Factory (d) Integral Coach Factory
- 1.22 IRCAMTECH
 (a) Indian Railways Council for Advanced Material Technology
 (b) Indian Railways Committee for Advanced Material Technology
 (c) Indian Railways Centre for Advanced Material Technology
 (d) Indian Railways Centre for Advanced Maintenance Technology
- 1.23 IRCON
 (a) Indian Railway Construction Company Ltd.
 (b) Indian Railway Committee on Negotiation
 (c) Indian Railway Container Company Ltd.
 (d) Indian Railway Communication On line service
- 1.24 IRFC
 (a) Indian Railway Finance Committee (b) Indian Railway Finance Council
 (c) Indian Railway Finance Corporation (d) Indian Railway Foreign Committee
- 1.25 IRIATT, Pune
 (a) Indian Railway Institute for Advanced Track Technology
 (b) Indian Railway Institute for Advanced Train Technology
 (c) Indian Railway Institute for Accident Treatment Training
 (d) Industrial Research in Automobile & Transport Technology
- 1.26 IRIEEN
 (a) Indian Railway Institute of Entertainment Engineer
 (b) Indian Railway Institute of Education Expert
 (c) Indian Railway Institute of Electrical Expert
 (d) Indian Railway Institute of Electrical Engineer, Nasik

- 1.27 IRIMEE
 (a) Indian Railway Institute for Material & Electrical Engineer
 (b) Indian Railway Institute for Mines & Electrical Engineer
 (c) Indian Railway Institute for Mechanical & Electrical Engineer
 (d) Indian Railway Institute for Mechanical Expert Engineer
- 1.28 IRISSET
 (a) Indian Railway Institute of Science & Electrical Technology
 (b) Indian Railway Institute of Signal & Electrical Technology
 (c) Indian Railway Institute of Signal Engineering & telecommunication
 (d) Indian Railway Institute of Science, Electrical & Telecommunication
- 1.29 IRWO
 (a) Indian Railway Working Output
 (b) Indian Railway Wagon Overhauling
 (c) Indian Railway Welfare Organization
 (d) Indian Railway Works Office
- 1.30 ITMS
 (a) Inter Train Management System
 (b) Inner Track Management System
 (c) Inter Train Modify System
 (d) Inner Track Maintenance System
- 1.31 KRCL
 (a) Konkan Railway Corporation Ltd.
 (b) Konkan Railway Computerized Link.
 (c) Konkan Railway Company Ltd.
 (d) Konkan Railway Construction Ltd
- 1.32 MRVC
 (a) Modernization for Railway Vehicles & Carriers
 (b) Mumbai Rail Vikas Corporation
 (c) Mumbai Rail Vikas Committee
 (d) Mumbai Rail Vikas Construction
- 1.33 MR
 (a) Material Resources
 (b) Minister of Railway
 (c) Modernization of Railway
 (d) Member Railway
- 1.34 MOSR
 (a) Minister of State Railway
 (b) Minister of Suburban Railway
 (c) Modernization of State Railway
 (d) Member Of Supply & Rehabilitation
- 1.35 CRB
 (a) Compensation & Rehabilitation Burro
 (b) Compensation & Rehabilitation Board
 (c) Chairman Railway Board
 (d) Combined Ranks of Bureaucracy
- 1.36 BB & CI Railway
 (a) Bombay Baroda & Central Industry
 (b) Broad Bombay & Central Industry
 (c) Bombay Baroda & Central India
 (d) Bombay Baroda & Centre Industry

- 1.37 GIP
 (a) Great Indian Peninsula (b) Grand Indian Peninsula
 (c) Group Internal Program (d) Government Internal Policy
- 1.38 CRGO
 (a) Central Railway Goods Office (b) Cold Rolled Grain Oriented
 (c) Centre for Railway Games Office (d) Copper Rolled Grain Oriented
- 1.39 ERBW
 (a) Electric Resistance But Wet (b) Electric Resistance But Welding
 (c) Electric Radiation By Waves (d) Electronic Radiation By Waves
- 1.40 ETP
 (a) Essential Track Program (b) Electrical Track Path
 (c) Effective Training Program (d) Electrolyte Tough Pitch
- 1.41 IDMT
 (a) Inverse Definite Minimum Time (b) Industrial Development Management Training
 (c) Intermediate Definite Minimum Time (d) Inverse Definite Maximum Time
- 1.42 Main line interrupter is denoted by B.M. i.e
 (a) Bus Main (b) Breaker Main
 (c) Bus Machine (d) Blocking Main
- 1.43 Yard line interrupter is denoted by B.S. i.e.
 (a) Bus Switch (b) Breaker Switch
 (c) Breaker Siding (d) Blocking Siding
- 1.44 Main line isolator switch is denoted by S.M. i.e.
 (a) State Main (b) Switch Main
 (c) Sectioning Main (d) Siding Main
- 1.45 Yard line isolator switch is denoted by S.S. i.e
 (a) Sectioning Switch (b) Switch Main
 (c) Sectioning Siding (d) Switch Siding
- 1.46 Full form of SWR
 (a) Section Working Rules (b) Station Working Rules
 (c) Safety Working Rules (d) Safety with remote control

CHAPTER 2

25 KV AC TRACTION SYSTEM

- 2.1 A neutral section is provided in OHE between two 25 kV, single phase , 50 Htz. traction sub-stations due to
- (a) To separate the zones, which fed by the adjacent substation of different phase
 - (b) To increases the current carrying capacity of the OHE
 - (c) To minimise the voltage drop in OHE conductors
 - (d) All of the above
- 2.2 Normally, power generation & transmission system of the supply authorities are of
- (a) Single phase
 - (b) Two phase
 - (c) Three phase
 - (d) Three phase & neutral wire
- 2.3 25 kV traction system needs the supply of
- (a) Single phase
 - (b) Two phase
 - (c) Three phase
 - (d) Three phase & neutral wire
- 2.4 Normally, power generation & transmission system of the supply authorities are of three phase type & incoming supply is taken in consecutive 25 kV ac traction sub stations is of different phase in rotation , due to
- (a) Balance the traction load on each phase
 - (b) Unbalance the traction load on each phase
 - (c) Obtained maximum power
 - (d) Minimise voltage drop
- 2.5 Normally, two adjacent 25 kV AC traction sub stations works as in
- (a) Parallel
 - (b) Series
 - (c) Independent
 - (d) Cannot say
- 2.6 In Indian Railways, what will be the maximum permissible % of unbalance voltage Instantaneously ?
- (a) 20%
 - (b) 15%
 - (c) 10%
 - (d) 5%
- 2.7 In Indian Railways, what will be the maximum permissible % of unbalance voltage for 2 minutes ?
- (a) 1%
 - (b) 2%
 - (c) 3%
 - (d) 5%
- 2.8 In Indian Railways , what will be the maximum permissible % of unbalance voltage Continuously ?
- (a) 1%
 - (b) 2%
 - (c) 3%
 - (d) 5%

- 2.9 The distance of OHE section between FP & SSP or SSP & SSP or SSP & SP is called.
 (a) Feeding length (b) Feeding zone
 (c) Sector (d) Sub sector
- 2.10 The distance of OHE section between FP & SP is called
 (a) Feeding length (b) Feeding zone
 (c) Sector (d) Sub sector
- 2.11 The distance of OHE section, for which “a traction transformer will feed power in emergent condition” is called
 (a) Feeding length (b) Feeding zone
 (c) Sector (d) Sub sector
- 2.12 The distance of OHE section, for which “a traction transformer will feed power in normal condition” is called
 (a) Feeding length (b) Feeding zone
 (c) Sector (d) Sub sector
- 2.13 The shortest section of OHE, which can be isolated through remote control by TPC is called.
 (a) Elementary section (b) Feeding zone
 (c) Sector (d) Sub sector
- 2.14 The shortest section of OHE, which can be isolated manually is called
 (a) Elementary section (b) Feeding zone
 (c) Sector (d) Sub sector
- 2.15 Interrupters or circuit breakers (CB's) can be operated through
 (a) Remote control (b) Local control by TSS operator
 (c) Manually (d) All of the above
- 2.16 Isolators can be operated through
 (a) Remote control (b) Local control by TSS operator
 (c) Manually (d) All of the above
- 2.17 Interrupter is a
 (a) Non automatic type circuit breakers (b) Automatic type circuit breakers
 (c) Both 'a' and 'b' (d) Neither 'a' nor 'b'
- 2.18 Normally, bridging interrupters at SP are in
 (a) Close position
 (b) Open position
 (c) When traction load increased than closed bridging interrupter
 (d) When traction load decreased than closed bridging interrupter

- 2.19 Normally, insulated overlap is employed opposite FP. What precautions should be taken , when adjacent TSS supply is extended upto FP by closing bridging interrupter at SP ?
- Handed over a caution order to driver for lower the panto before approaching insulated overlap at FP
 - Both side of FP, power supply should be switched -off
 - Both feeder CB should be in open position
 - All of the above
- 2.20 What is the main advantage of CB over interrupter
- Isolate by remote control
 - Less maintenance
 - Automatic trip the circuit when fault occurred
 - All of the above
- 2.21 What will be the OHE impedance for single track without return conductor ?
- $0.41 / 70^0$ ohm/km
 - $0.43 / 70^0$ ohm/km
 - $0.48 / 70^0$ ohm/km
 - $0.24 / 70^0$ ohm/km
- 2.22 What will be the OHE impedance for double track without return conductor ?
- $0.41 / 70^0$ ohm/km
 - $0.43 / 70^0$ ohm/km
 - $0.48 / 70^0$ ohm/km
 - $0.24 / 70^0$ ohm/km
- 2.23 What will be the OHE impedance for single track with return conductor ?
- $0.41 / 70^0$ ohm/km
 - $0.63 / 70^0$ ohm/km
 - $0.70 / 70^0$ ohm/km
 - $0.43 / 70^0$ ohm/km
- 2.24 What will be the OHE impedance for double track with return conductor ?
- $0.41 / 70^0$ ohm/km
 - $0.63 / 70^0$ ohm/km
 - $0.70 / 70^0$ ohm/km
 - $0.43 / 70^0$ ohm/km
- 2.25 What will be the booster transformer impedance ?
- 0.10 ohm
 - 0.15 ohm
 - 0.24 ohm
 - 0.43 ohm
- 2.26 What will be the booster transformer windings ratio between primary & secondary ?
- 1000:5
 - 1000:3
 - 1:1
 - 5:1
- 2.27 Contact wire is connected with primary of booster transformer in
- series
 - parallel
 - both series & parallel
 - Cannot say
- 2.28 The distance between two consecutive booster transformer location in 25 kV AC traction system with return conductor is
- 1 km
 - 1.33 km
 - 2 km
 - 2.66 km

- 2.29 In 25 kV AC TSS, the 25 kV transformer CB's are given standard number in a manner of
 (a) 100, 101, 102, -----etc. (b) 100, 102, 104,-----etc.
 (c) 101, 103, 105, -----etc. (d) 10, 11, 12, 13, -----etc.
- 2.30 The no. plate of OHE structures for UP line will be such as
 (a) 75/12, 75/13, 75/14, -----etc. (b) 75/12A, 75/13A, 75/14A, -----etc.
 (c) 75/13, 75/15, 75/17, -----etc.. (d) 75/13A, 75/15A, 75/17A, -----etc..
- 2.31 The no. plate of OHE structures for DN line will be such as
 (a) 75/12, 75/13, 75/14, -----etc. (b) 75/12, 75/14, 75/16, -----etc.
 (c) 75/13, 75/15, 75/17, -----etc.. (d) 75/13A, 75/15A, 75/17A, -----etc..
- 2.32 For 70/3 no. plate, numerator shows the km distance from starting station , while denominator shows the
 (a) serial no. of mast of 70 km. post of Up line
 (b) serial no. of mast of 70 km. post of DN line
 (c) decimal km. distance of mast of 70 km. post of Up line
 (d) decimal km. distance of mast of 70 km. post of DN line
- 2.33 For 70/14 no. plate, numerator shows the km distance from starting station, while denominator shows the
 (a) serial no. of mast of 70 km. post of Up line
 (b) serial no. of mast of 70 km. post of DN line
 (c) decimal km. distance of mast of 70 km. post of Up line
 (a) decimal km. distance of mast of 70 km. post of DN line
- 2.34 The number plate of OHE structures for loops & sidings line will be such as
 (a) 75/101, 75/102, 75/103, -----etc. (b) 75/100, 75/102, 75/104, -----etc.
 (c) 75/101, 75/103, 75/105, -----etc. (d) 75/1001, 75/1003, 75/1005, ----etc.

CHAPTER 3**SPAN LENGTH, TENSION LENGTH**

- 3.1 Distance between two consecutive OHE structures is called
 (a) Tension length (b) Span length (c) Encumbrance (d) Stagger
- 3.2 In AC traction, span length varies in steps of
 (a) 4.5 meters (b) 9 meters (c) 6 meter (d) 18 meters
- 3.3 Maximum span length in AC traction on tangent track is
 (a) 67.5 meter (b) 72 meter (c) 63 meter (d) 22 meter
- 3.4 Standard span length in regulated AC traction is
 (a) 55 meters (b) 57.5 meter (c) 49.5 meter (d) 61 meter
- 3.5 Standard span length in regulated AC traction is
 (a) 60 meter (b) 56 meter. (c) 50 meter (d) 45 meter
- 3.6 Maximum span length in unregulated Tramway OHE is
 (a) 45 meter (b) 36 meter (c) 30 meter (d) 22.5 meter
- 3.7 Maximum span length in regulated Tramway OHE is
 (a) 72 meter (b) 61 meter (c) 67.5 meter (d) 63 meter
- 3.8 Difference between two consecutive span length should not be more than
 (a) 25 m. (b) 20 m. (c) 18 m. (d) 16 m.
- 3.9 In AC traction , maximum span length in unregulated OHE is
 (a) 72 m. (b) 67.5 m. (c) 63 m. (d) 61 m.
- 3.10 If unequal encumbrance is used between two OHE structures, maximum span length will be
 (a) 72 m. (b) 67.5 m. (c) 61 m. (d) 63 m.
- 3.11 Determination of maximum span length does not depend upon
 (a) Blow-off. (b) Versine of track.
 (c) Encumbrance (d) Gradient.
- 3.12 With crossed type OHE equipment with actual crossing of OHE's at facing turnout , the anchor span shall not be more than
 (a) 67.5 m. (b) 36 m. (c) 58.5 m. (d) 54 m.
- 3.13 On curves , The measurement of span length in odd number of track is measured from
 (a) Outer rail of the middle track (b) Inner rail of the middle track
 (c) Outer rail of the first track (d) Inner rail of the last track

- 3.14 On curves , The measurement of span length in even number of track is measured from the centre of formation, is measured from
 (a) Inner rail of the last out side track. (b) Outer rail of the first inside track
 (c) Inner rail of the first out side track (d) Inner rail of the first inside track
- 3.15 Distance between one anchoring end to other anchoring end of OHE's conductors is called
 (a) Tension length (b) Span length
 (c) Implantation (d) Encumbrance
- 3.16 Maximum tension length in AC traction is
 (a) 1500 m (b) 1600 m
 (c) 1000 m (d) 750 m
- 3.17 In AC traction, maximum tension length may be permissible in yard :-
 (a) 1500 m (b) 1600 m
 (c) 1800 m (d) 2000 m
- 3.18 Maximum tension length is restricted upto 1500 m due to
 (a) Maintain uniform tension in OHE conductors.
 (b) Neutralize Versine effect
 (c) Blow-off in conductors within limit.
 (d) All of the above
- 3.19 At the end of tension length ,an overlap is formed due to
 (a) To maintain electrical clearance.
 (b) To maintain mechanical clearance
 (c) To maintain mechanical & electrical clearance.
 (d) To provide smooth passage for pantograph.
- 3.20 A small tension length is much useful at the time of OHE breakdown or maintenance work due to
 (a) Mechanical independence of each tension length.
 (b) To maintain uniform tension in entire tension length.
 (c) Easy transportation of OHE conductors.
 (d) All of the above
- 3.21 Which type of overlap is formed at the end of every tension length
 (a) Insulated overlap
 (b) Un-insulated overlap
 (c) Either Insulated overlap or un-insulated overlap.
 (d) None of the above.

CHAPTER 4

WIND PRESSURE ON CONVENTIONAL OHE & SAG

- 4.1 Maximum wind pressure is considered to design OHE structures for Red zone
 (a) 180 kgf /sq. m. (b) 160 kgf /sq. m.
 (c) 150 kgf /sq. m. (d) 110 kgf /sq. m.
- 4.2 What will be the % reduction in Wind pressure considered for (less than 30 m height of building structural) in comparison of the Wind pressure considered for more than 30 m height of building structural
 (a) 60 % (b) 50 %
 (c) 40 % (d) 25 %
- 4.3 If OHE structures erected on more than 150 m long bridge , the wind load is considered according to wind pressure zone for OHE structures
 (a) 25 % more (b) 40 % more
 (c) 50 % less (d) 25 % less
- 4.4 Maximum wind pressure is considered to design OHE structures for Yellow zone
 (a) 112.5 kgf /sq. m. (b) 125 kgf /sq. m.
 (c) 109.5 kgf /sq. m. (d) 102 kgf /sq. m.
- 4.5 Maximum wind pressure is considered to design OHE structures for Green zone
 (a) 112.5 kgf /sq. m. (b) 105 kgf /sq. m.
 (c) 75 kgf /sq. m. (d) 88 kgf /sq. m.
- 4.6 Wind pressure for determination of span are based on code of practice for structural safety building loading standards
 (a) IS-890-1964 (b) IS-880-1964
 (c) IS-875-1964 (d) IS-870-1964
- 4.7 Give the relation between maximum tension in conductors (T_m), tensile strength (T_s), cross section area of the conductor(A) & factor of safety (F_s)
 (a) $T_m = F_s \cdot T_s \cdot A$ (a) $T_m = F_s \cdot T_s / A$
 (c) $T_m = F_s \cdot A / T_s$ (d) $T_m = T_s / F_s$
- 4.8 What will be the sag (s) in the conductor? Where, L= span length, T= tension in the conductor & w = per meter weight of the conductor
 (a) $s = wL^2 / T$ (b) $s = wL / 8T$
 (c) $s = wL^2 / 8T$ (d) $s = TL^2 / 8 w$
- 4.9 When span length increased twice than sag in the conductor will be
 (a) Two times (b) Four times
 (c) Remains same (d) Half times

- 4.10 When tension & per meter weight of the conductor increased twice than sag in the conductor will be
 (a) Two times (b) Four times
 (c) Remains same (d) Half times
- 4.11 Blow-off is calculated by the formula -----where, W_c & W_q = wind load per unit length of contact & catenary respectively. T_c & T_q = tension in contact & catenary respectively . L = Span length
 (a) $1.5 (W_c + W_q) L^2 / 8 (T_c + T_q)$ (b) $(2 W_c + W_q) L^2 / 8 (T_c + T_q)$
 (c) $(W_c + W_q) L^2 / 8 (T_c + T_q)$ (d) $1.05 (W_c + W_q) L^2 / 8 (T_c + T_q)$
- 4.12 Wind load on conductor is calculated by
 (a) Projected area of conductor x wind pressure
 (b) $3/2$ (Projected area of conductor x wind pressure)
 (c) $2/3$ (Projected area of conductor x wind pressure)
 (d) $1/3$ (Projected area of conductor x wind pressure)
- 4.13 When diameter of contact & catenary increases twice, than Blow-off will be
 (a) 2 times (b) 4 times
 (c) half times (d) remains same
- 4.14 When tension of contact & catenary increases twice than Blow-off will be
 (a) 2 times (b) 4 times
 (c) half times (d) remains same
- 4.15 When span length increases twice than Blow-off will be
 (a) 2 times (b) 4 times
 (c) 8 times (d) 16 times
- 4.16 Rise of one side rail of same track to counteract centrifugal force , which developed during the motion of body on a curved track, is called
 (a) blow-off (b) versine
 (c) super elevation (d) gradient of track
- 4.17 Maximum deflection of mast at contact wire level due to wind pressure, is allowed
 (a) 80 mm. (b) 70 mm.
 (c) 60 mm. (d) 40 mm.
- 4.18 Maximum deflection of mast at top due to load is allowed
 (a) 80 mm. (b) 70 mm.
 (c) 60 mm. (d) 40 mm.

CHAPTER 5

ENCUMBRANCE, GRADIENT OF THE CONTACT WIRE

- 5.1 Axial distance between catenary & contact wire at the OHE support, in vertical plane is called
 (a) Implantation (b) Gradient of OHE
 (c) Encumbrance (d) Stagger
- 5.2 In AC traction, normal encumbrance at support is
 (a) 1.9 m (b) 1.4 m (c) 0.9 m (d) 2.0 m
- 5.3 Normal encumbrance in dc is more than ac traction, why?
 (a) Heavy weight of dc catenary (b) Heavy current in dc
 (c) More stagger in dc (d) Less height of dc catenary
- 5.4 In AC traction, the axial distance between catenary & contact wire in vertical plane at mid span should not be less than
 (a) 150 mm (b) 170 mm (c) 180 mm (d) 270 mm
- 5.5 At obligatory structure of turnout, It is general practice to give encumbrance
 (a) 1.4 m. turnout OHE & 0.9 m main line OHE
 (b) 0.9 m. turnout OHE & 1.4 m main line OHE
 (c) 1.4 m. turnout OHE & 1.4 m main line OHE
 (d) 0.9 m. turnout OHE & 0.9 m main line OHE
- 5.6 At turnout structure, It is general practice to give encumbrance of 1.4 m to the turnout OHE & 0.9 m to the main line OHE due to
 (a) To maintain proper tension.
 (b) To accommodated section insulator in turnout OHE
 (c) To maintain proper stagger.
 (d) None of the above.
- 5.7 Maximum permissible relative gradient of contact wire in two adjacent span shall not be greater than on main lines
 (a) 1.5 mm /m. (b) 2 mm /m. (c) 3 mm /m. (d) 4 mm /m.
- 5.8 Maximum permissible relative gradient of contact wire in two adjacent span shall not be greater than on sidings
 (a) 2 mm /m. (b) 3 mm /m. (c) 4 mm /m. (d) 5 mm /m.
- 5.9 Change of the height of the contact wire to be achieved very gradually, to avoid
 (a) Loose contact between contact wire & pantograph.
 (b) Exert excessive pressure on the contact wire by pantograph.
 (c) Poor current collection.
 (d) All of the above.

- 5.10 What do you mean by “Relative gradient of contact wire”
- Change in the height of contact wire first time & last time
 - Change in the height of contact wire at beginning of tension length
 - Change in the height of contact wire in the middle of desired height
 - All of the above
- 5.11 Change in contact wire height with respect to per unit meter length of contact wire is called
- Gradient of contact wire
 - Either Gradient of contact wire or track
 - Gradient of track
 - Neither gradient of contact wire nor track
- 5.12 When level crossing gate is approached , the height of contact wire is
- Reduce
 - Increase
 - Either Reduce or Increase
 - Neither Reduce or Increase
- 5.13 Maximum permissible gradient of contact wire, when maximum permissible train speed is more than 100 kmph on main lines
- 2 mm/m
 - 3 mm/m
 - 4 mm/m
 - 5 mm/m
- 5.14 Maximum permissible gradient of contact wire, when maximum permissible train speed is shunting speed in yards
- 3 mm/m
 - 4 mm/m
 - 5mm/m
 - 10 mm/m
- 5.15 What do you mean by the term ‘hard spot’ in the contact wire ?
- Different material used at different material
 - Processing in which contact wires joined together
 - Where contact wire wear is more
 - All of the above
- 5.16 In order to reduce the wear of the contact wire, which measures should be adopted ?
- Track condition should be good & hard spots on contact wire should be minimum.
 - Stagger , droppers & contact height should be maintained as per SED
 - Proper tension in the contact wire & pre-stress tension should be executed on the catenary wire and contact wire at the time of erection.
 - All of the above
- 5.17 In AC traction, what will be encumbrance tolerance at support is (As per RDSO latter no.TI/OHE/GA/3013 dated 14.05.13
- ± 50 mm
 - ± 20 mm
 - ± 0 mm
 - ± 10 mm

CHAPTER 6

HEIGHT OF CONTACT WIRES, LEVEL CROSSING GATE

- 6.1 In AC traction, minimum height of contact wire under ROB/FOB from rail level to permit “C” class ODC
 (a) 4.92 m (b) 4.80 m (c) 4.65 m (d) 5.03 m
- 6.2 In AC traction, height of contact wire at support from rail level (regulated OHE) with 50 mm pre sag in contact wire is
 (a) 5.50 m (b) 5.55 m (c) 5.60 m (d) 5.65 m
- 6.3 In AC traction, height of contact wire at support from rail level (regulated OHE) with 100 mm pre sag in contact wire is
 (a) 5.50 m (b) 5.55 m (c) 5.60 m (d) 5.75 m
- 6.4 In AC traction, height of contact wire from rail level in Car shed is
 (a) 5.60 m (b) 5.65 m (c) 5.75 m (d) 5.80 m
- 6.5 In AC traction, normal height of the catenary wire at support from rail level (regulated OHE) with 100 mm pre sag in contact wire is about
 (a) 7.20 m (b) 7.75 m (c) 7.25 m (d) 7.45 m
- 6.6 In AC traction, height of contact wire (unregulated OHE) for 4⁰- centigrade to 65⁰ degree centigrade area is
 (a) 5.5 m (b) 5.55 m (c) 5.6 m (d) 5.75 m
- 6.7 In AC traction, height of contact wire (unregulated OHE) for 16⁰ centigrade to 65⁰ centigrade area is
 (a) 5.55 m (b) 5.6 m (c) 5.65 m (d) 5.75 m
- 6.8 In AC traction , height of termination of regulated OHE is
 (a) 6.45 m (b) 6.75 m (c) 6.95 m (d) 7.25 m
- 6.9 In AC traction, height of termination of unregulated OHE is
 (a) 6.75 m (b) 6.8 m (c) 6.95 m (d) 7.2 m
- 6.10 In AC traction, height of catenary termination for split anchor (regulated OHE) is
 (a) 6.75 m (b) 6.95 m (c) 7.15 m (d) 7.25 m
- 6.11 In AC traction, height of catenary termination for split anchor (unregulated OHE) is
 (a) 6.75 m (b) 6.95 m (c) 7.15 m (d) 7.25 m
- 6.12 In AC traction, height of contact termination for split anchor (regulated OHE) is
 (a) 6.25 m (b) 6.45 m (c) 6.75 m (d) 6.95 m

- 6.13 In AC traction, height of contact termination for split anchor (unregulated OHE) is
 (a) 6.25 m (b) 6.45 m (c) 6.75 m (d) 6.95 m
- 6.14 In AC traction, height of termination of return conductor is
 (a) 6.75 m (b) 6.95 m (c) 7.25 m (d) 7.45 m
- 6.15 At level crossing gate, maximum height of rail height gauge from the road surface is
 (a) 4.38 m (b) 4.67 m (c) 4.80 m (d) 4.45 m
- 6.16 At level crossing gate, minimum distance of rail height gauge from the nearest track should be
 (a) 4 m (b) 8 m (c) 10 m (d) 12 m
- 6.17 In AC traction, height of contact wire at level crossing from rail level (regulated OHE)
 (a) 5.50 m (b) 5.55 m (c) 5.60 m (d) 5.65 m
- 6.18 In AC traction, tolerance in height of catenary wire from rail level at support is (As per RDSO latter no.TI/OHE/GA/3013 dated 14.05.13)
 (a) Zero (b) ± 50 mm (c) ± 20 mm (d) ± 10 mm
- 6.19 Tolerance of catenary wire height is (As per RDSO latter no. TI/OHE/GA/2013 dated 14.05.1013)
 (a) ± 30 mm (b) ± 50 mm (c) ± 10 mm (d) Zero
- 6.20 In AC traction , the minimum height of contact wire is
 (a) 4.69 m (b) 4.79 m (c) 4.92 m (d) 4.89 m

CHAPTER 7

DROPPERS & OTHER OHE CONDUCTORS

- 7.1 The fittings, which is used to transfer the weight of contact wire to the catenary wire is called
 (a) Section insulator (b) Jumpers
 (c) Cantilever assembly (d) Droppers
- 7.2 Droppers are used for
 (a) Leveling the contact wire (b) To maintain stagger
 (c) Reduced the sag in catenary wire (d) None of the above
- 7.3 Droppers are made out of
 (a) Annealed copper (b) Hard drawn copper
 (c) Cadmium copper (d) Bronze
- 7.4 Diameter of in-span dropper in AC traction is
 (a) 7 mm (b) 6.75 mm
 (c) 6 mm (d) 5 mm
- 7.5 Diameter of inclined dropper in bracket assembly is
 (a) 7 mm (b) 5 mm
 (c) 9 mm (d) 6 mm
- 7.6 In AC traction , how many droppers in 72 m span length
 (a) 9 Droppers (b) 10 Droppers
 (c) 8 Droppers (d) 12 Droppers
- 7.7 In AC traction , how many droppers in 58.5 m span length
 (a) 9 droppers (b) 8 droppers
 (c) 7 droppers (d) 6 droppers
- 7.8 In AC traction, how many droppers in 54 m span length
 (a) 8 Droppers (b) 7 Droppers
 (c) 6 Droppers (d) 5 Droppers
- 7.9 In AC traction ,how many droppers in 35 m. non standard span length
 (a) 5 Droppers (b) 4 Droppers
 (c) 6 Droppers (d) 3 Droppers
- 7.10 In AC traction, spacing of 'A' dropper (1st dropper from the support) is
 (a) 4.50 m (b) 2.50 m
 (c) 2.25 m (d) 2.00 m

- 7.11 In AC traction, spacing of 'A' dropper tolerance (1st dropper from the support) is (As per RDSO latter no. TI/OHE/GA/3013 dated 14.05.13)
- (a) ± 20 mm (b) Zero
(c) ± 10 mm (d) ± 30 mm
- 7.12 In AC traction, length of 'A' dropper tolerance (1st dropper from the support) is (As per RDSO latter no. TI/OHE/GA/3013 dated 14.05.13)
- (a) ± 5 mm (b) Zero
(c) ± 10 mm (d) ± 15 mm
- 7.13 In AC traction, length of other droppers tolerance is (As per RDSO latter no. TI/OHE/GA/3013 dated 14.05.13)
- (a) ± 5 mm (b) Zero
(c) ± 10 mm (d) ± 15 mm
- 7.14 In AC traction, spacing of other dropper tolerance is (As per RDSO latter no. TI/OHE/GA/3013 dated 14.05.13)
- (a) ± 20 mm (b) Zero
(c) ± 50 mm (d) ± 30 mm
- 7.15 In AC traction, distance of 2nd dropper from 1st dropper in 72 m span length
- (a) 9.0 m (b) 6.75 m
(c) 4.5 m (d) 2.25 m
- 7.16 In AC traction , distance of 2nd dropper from 1st dropper in 58.5 m. span length
- (a) 9.0 m (b) 6.75 m
(c) 4.5 m (d) 2.25 m
- 7.17 In AC traction , distance of 3rd dropper from 2nd dropper in 58.5 m span length
- (a) 9 m (b) 6.75 m
(c) 6 m (d) 4.5 m
- 7.18 In AC traction, a chain dropper is consists of parts viz (i) Fixed part (ii) Variable part. What will be the length of fixed part
- (a) 152 mm (b) 125 mm
(c) 105 mm (d) 76.2 mm
- 7.19 If dropper is rigid type or encumbrance is less than 150 mm, the OHE is suitable upto the maximum speed
- (a) 120 KMPH (b) 100 KMPH
(c) 90 KMPH (d) 65 KMPH
- 7.20 In AC traction , distance of 2nd dropper from 1st dropper in 60 m non standard span length
- (a) 9.0 m (b) 6.75 m
(c) 6.0 m (d) 5.25 m
- 7.21 When equal encumbrance 1.4 m is given at both OHE supports & 100 mm pre sag in contact wire, what will be the length of 1st dropper in 72 m span length ?
- (a) 1250 mm (b) 1283 mm
(c) 1273 mm (d) 1261 mm

- 7.22 When equal encumbrance 1.4 m. is given at both OHE supports & 100 mm pre sag in contact wire, what will be the length of 2nd dropper in 72 m span length?
 (a) 1118 mm (b) 1018 mm
 (c) 908 mm (d) 902 mm
- 7.23 When equal encumbrance 1.4 m. is given at both OHE supports & 100 mm pre sag in contact wire, what will be the length of 3rd dropper in 72 m span length ?
 (a) 767 mm (b) 763 mm
 (c) 761 mm (d) 758 mm
- 7.24 When equal encumbrance 1.4 m. is given at both OHE supports & 100 mm pre sag in contact wire, what will be the length of 4th dropper in 72 m span length?
 (a) 621 mm (b) 617 mm
 (c) 613 mm (d) 609 mm
- 7.25 When equal encumbrance 1.4 m. is given both OHE supports & 100 mm pre sag in contact wire, what will be the length of 5th dropper in 72 m span length?
 (a) 589 mm (b) 576 mm
 (c) 571 mm (d) 566 mm
- 7.26 Chain droppers are used for smooth adjustment of section insulator, both the pieces of chain droppers are connected together by P.G. clamp, what is the length of piece of dropper ?
 (a) 400 mm (b) 450 mm
 (c) 350 mm (d) 320 mm
- 7.27 In AC traction, distance between 1st & 2nd dropper in 56 m non standard span length is
 (a) 4.50 m (b) 6.75 m
 (c) 7.75 m (d) 9.00 m
- 7.28 For inclined OHE, angle between dropper's top position & vertical plane should not be more than
 (a) 10° (b) 6°
 (c) 4° (d) 2°
- 7.29 Material of AC catenary wire is
 (a) Cadmium copper (b) Annealed copper
 (c) Hard drawn copper (d) Bronze
- 7.30 No. of layers & strands of AC catenary wire is
 (a) 3 layer & 19 strands (b) 2 layer & 19 strands
 (c) 2 layer & 37 strands (d) 3 layer & 37 strands
- 7.31 Diameter of each strand of AC catenary wire is
 (a) 2.92 mm (b) 2.42 mm
 (c) 2.11 mm (d) 2.32 mm

- 7.32 Over all diameter of ac catenary wire is
 (a) 12.56 mm (b) 12.25 mm
 (c) 10.50 mm (d) 9.20 mm
- 7.33 Cross section area of AC catenary wire is
 (a) 107 sq mm (b) 98 sq mm
 (c) 65 sq mm (d) 61 sq mm
- 7.34 Per meter weight of catenary wire is
 (a) 1250 gm (b) 971 gm
 (c) 951 gm (d) 603 gm
- 7.35 Material of 107sq mm wire is
 (a) Hard drawn copper (b) Annealed copper
 (c) Cadmium copper (d) Brass
- 7.36 Diameter of new 107sq mm wire is
 (a) 16.36 mm (b) 12.24 mm
 (c) 10.55 mm (d) 8.25 mm
- 7.37 Condemning size of 107sq mm wire
 (a) 8.93 mm (b) 8.34 mm
 (c) 8.25 mm (d) 8.89 mm
- 7.38 Cross section area of 107sq mm wire is
 (a) 193 sq mm (b) 158 sq mm
 (c) 107 sq mm (d) 97 sq mm
- 7.39 Per meter weight of 107sq mm wire is
 (a) 951 gm (b) 930 gm
 (c) 870 gm (d) 603 gm
- 7.40 Current density of copper (continuous) is
 (a) 4 amps/sq. mm (b) 7 amps /sq. mm
 (c) 5 amps /sq. mm (d) 2 amps /sq. mm
- 7.41 Current density of copper (for 3 minutes) is
 (a) 9 amps /sq. mm (b) 7 amps /sq. mm
 (c) 6 amps /sq. mm (d) 5 amps /sq. mm
- 7.42 Conductivity of aluminum in terms of equivalent copper will be
 (a) 70 % (b) 60 %
 (c) 45 % (d) 30 %
- 7.43 Conductivity of cadmium copper in terms of equivalent copper will be
 (a) 80 % (b) 70 %
 (c) 45 % (d) 30 %

- 7.44 Tensile strength of annealed copper is
(a) 25 kg / sq mm (b) 42 kg / sq mm
(c) 63 kg / sq mm (d) 66 kg / sq mm
- 7.45 Tensile strength of hard drawn copper is
(a) 25 kg /sq mm (b) 42 kg /sq mm
(c) 63 kg /sq mm (d) 66 kg /sq mm
- 7.46 Tensile strength of cadmium copper is
(a) 50 kg /sq mm (b) 59 kg /sq mm
(c) 69 kg /sq mm (d) 63 kg /sq mm
- 7.47 Tensile strength of aluminum, in terms of equivalent copper will be
(a) 75 % (b) 66 %
(c) 50 % (d) 45 %
- 7.48 Weight of aluminum, in terms of equivalent copper will be
(a) 60 % (b) 45 %
(c) 33 % (d) 30 %
- 7.49 Cadmium copper is used in place of hard drawn copper for AC catenary wire, why?
(a) To increase tensile strength of catenary
(b) To reduce the weight of catenary
(c) To increases current carrying capacity
(d) None of above
- 7.50 Groove angle of 107sq mm contact wire is
(a) 78 degree (b) 81 degree
(c) 91 degree (d) 71 degree
- 7.51 Distance between groove edge to groove edge i.e. inner distance in 107sq mm wire
(a) 6.92 mm (b) 3.42 mm
(c) 5.62 mm (d) 8.12 mm
- 7.52 Vertical distance between the centre of the groove to the top of crown in 107sq mm wire will be
(a) 5.30 mm (b) 5.6 mm
(c) 4.45 mm (d) 4.0 mm

CHAPTER 8

STAGGER

- 8.1 The displacement of contact wire with respect to the pantograph axis is called
(a) Implantation (b) Stagger of contact wire
(c) Gradient of contact wire (d) Sag
- 8.2 In AC traction, maximum stagger of contact wire on curved track is
(a) 380 mm (b) 300 mm
(c) 229 mm (d) 200 mm
- 8.3 In AC traction, maximum stagger of contact wire on tangent track is
(a) 380 mm (b) 300 mm
(c) 229 mm (d) 200 mm
- 8.4 Maximum stagger is allowed at mid span is
(a) 229 mm (b) 200 mm
(c) 152 mm (d) 100 mm
- 8.5 Contact wire is placed in zig- zag manner in entire span length , why ?
(a) To avoid formation of groove on pantopan strip
(b) Uniform rubbing of pantopan strip within current collection zone
(c) To avoid breakdown due to formation of groove in pantopan strip
(d) All of the above
- 8.6 Which factor affects the stagger of contact wire ?
(a) Blow-off (b) Versine
(c) Track slewing (d) All of the above
- 8.7 The displacement of contact wire from its original position due to wind pressure across the track is called
(a) Blow-off (b) Versine
(c) Stagger (d) Super elevation
- 8.8 On tangent track, contact stagger is 200 mm at support, what will be the catenary stagger?
(a) 300 mm (b) 200 mm
(c) 100 mm (d) Zero
- 8.9 On curved track , contact stagger is 300 mm. at support, what will be the catenary stagger
(a) 300 mm (b) 200 mm
(c) 100 mm (d) Zero
- 8.10 The offset of the track centre from the chord joining the two adjacent points at the track centre is called
(a) Super elevation (b) Versine
(c) Blow-off (d) Span length

- 8.11 Versine "V" is calculated by the formula
Where, L = span length R= radius of curvature of track
(a) $V = L / 8R$ (b) $V = L^2 / 4R$
(c) $V = 2L / R$ (d) $V = L^2 / 8R$
- 8.12 When radius of curvature reduced half than versine will be
(a) Half times (b) Remains same
(c) 4 Times (d) 2 Times
- 8.13 When span length, increases twice than versine will be
(a) 2 Times (b) 4 Times
(c) 8 Times (d) Remains same
- 8.14 Depression of track due to low joints, loose packing, the change in the track level is magnified at the contact wire level , The value of this change may be taken for consideration of stagger
(a) 10 mm (b) 50 mm
(c) 40 mm (d) 33 mm
- 8.15 The affect of variation of maximum stagger due to track slewing should be
(a) 100 mm (b) 60 mm
(c) 48 mm (d) 42 mm
- 8.16 What will be the length of chord of curve track? Which makes an angle of 1° curve at center ?
(a) 100 m (b) 70 m
(c) 50 m (d) 30 m
- 8.17 Length of radius of track is calculated by the formula, at the center of curve. Where Theta = Angle, R= Radius
(a) $1890 \text{ m} / \text{Theta}$ (b) $1810 \text{ m} / \text{Theta}$
(c) $1746 \text{ m} / \text{Theta}$ (d) $1701 \text{ m} / \text{Theta}$
- 8.18 Centrifugal force (P) is equal to
(a) Mass x acceleration (b) Mass x velocity
(c) Weight x acceleration (d) Velocity x acceleration
- 8.19 At curve track versine is measured from the
(a) Inner edge of the outer rail (b) Outer edge of the outer rail
(c) Inner edge of the inner rail (d) Outer edge of the inner rail
- 8.20 For odd no's of tracks, versine is measured from
(a) Outer rail of the middle track (b) Inner rail of the middle track
(c) Inner rail of the first out side track (d) Individually measured for each track
- 8.21 Acceleration on curved track is calculated by the formula , where , V= velocity of motion body on curve, R= Radius of curvature
(a) V / R (b) V^2 / R
(c) V^2 / gR (d) $V / 2g R$

- 8.22 In equilibrium position , super elevation (d) is calculated by
where, G = track gauge, g = gravitational force R= Radius of curvature V= speed in KMPH
(a) $d = GV^2 / gR$ (b) $d = GV / 2gR$
(c) $d = GV^2 / 2gR$ (d) $d = GV^2 / 2gR^2$
- 8.23 Displacement of panto axis (D) , due to super elevation (d) is calculated by -
Where, G= Track gauge (for B.G. 1.676 m.)
H= Height of contact wire from rail level
(a) $D = dH^2 / G$ (b) $D = d^2 \cdot H / G$
(c) $D = d \cdot H / G$ (d) $d \cdot H / G^2$
- 8.24 What will be the relation between velocity (V) in KMPH , Radius of curvature (R) in meter & super elevation (d) in mm.?
(a) $V = 4.4 \sqrt{(Rd)}$
(b) $V = \sqrt{(4.4 Rd)}$
(c) $V = 0.235 \sqrt{(Rd)}$
(d) $V = \sqrt{(Rd)} / 0.235$
- 8.25 As per formula , $V = 0.235 \sqrt{(Rd)}$, super elevation is given on IR to the consideration of maximum speed
(a) 100 KMPH (b) 75 KMPH
(c) 64 KMPH (d) 54 KMPH
- 8.26 For even no's of tracks, versine is measured from
(a) Outer rail of the middle track (b) Inner rail of the middle track
(c) Inner rail of the first out side track (d) Individually measured for each track
- 8.27 Tolerance of catenary wire stagger is (As per RDSO latter no. TI/OHE/GA/2013 dated 14.05.1013)
(a) ± 30 mm (b) ± 20 mm
(c) ± 10 mm (d) Zero
- 8.28 Tolerance of contact wire stagger is (As per RDSO latter no. TI/OHE/GA/2013 dated 14.05.1013)
(a) ± 30 mm (b) ± 20 mm
(c) ± 10 mm (d) Zero

CHAPTER 9

REGULATED/UNREGULATED OHE

- 9.1 When temperature increases, than length of conductors
 (a) Increases (b) Decreases
 (c) Remains same (d) None of above
- 9.2 OHE conductors are terminated on auto tensioning device (ATD) at both end of tension length on anchoring structures . This type of OHE is called
 (a) Regulated OHE (b) Unregulated OHE
 (c) Tram way OHE (d) Compound OHE
- 9.3 In regulated OHE, when temperature increased than tension of OHE conductors
 (a) Increased (b) Decreased
 (c) Remains same (d) Cannot say
- 9.4 In regulated OHE, how much tension is kept in OHE
 (a) As per tension / temperature chart (b) 3000 kg
 (c) 2000 kg (d) 1500 kg
- 9.5 In regulated OHE, Where anti-creep point is provided ?
 (a) Starting of tension length (b) Finishing of tension length
 (c) Midway of tension length (d) All of the above
- 9.6 Distance between anti-creep point & anchoring structure should not be more than
 (a) 1600 m. (b) 1500 m.
 (c) 750 m. (d) 600 m.
- 9.7 Regulated OHE is suitable for the speed
 (a) Above 100 KMPH (b) Less than 100 KMPH
 (c) Upto 80 KMPH (d) Upto 90 KMPH
- 9.8 Unregulated OHE is suitable for the speed
 (a) Above 100 KMPH (b) Less than 60 KMPH
 (c) Upto 80 KMPH (d) Upto 100 KMPH
- 9.9 The reason of anti-creep arrangement is “To restrict the OHE movement
 (a) Along the track (b) Across the track
 (c) Both across & along the track (d) Neither across nor along the track
- 9.10 Tramway type OHE can be used for
 (a) Main line (b) Siding only
 (c) Wiring of turnouts (d) All of the above

- 9.11 Tramway type OHE (regulated) is suitable upto the maximum speed
(a) 30 kmph (b) 60 kmph
(c) 75 kmph (d) 100 kmph
- 9.12 Tramway type OHE (unregulated) is suitable upto the maximum speed
(a) 30 kmph (b) 60 kmph
(c) 75 kmph (d) 100 kmph
- 9.13 In tramway type OHE , which type conductor is used ?
(a) A solid groove contact wire only
(b) A solid groove contact wire & catenary light in weight
(c) A solid & without grooved contact wire
(d) none of the above
- 9.14 What is the initial tension in an unregulated OHE ?
(a) 2000 kg (b) 1000 kg
(c) 3000 kg (d) 1500 kg
- 9.15 Unregulated OHE can be used for
(a) Main line (b) Secondary loop lines & Sidings only
(c) Sidings (d) All of the above
- 9.16 What is the initial sag is allow at the stringing temperature ?
(a) 10 mm (b) 20 mm
(c) No sag (d) 15 mm

CHAPTER 10

DIFFERENT OHE SYSTEMS, PRE SAG AND ELASTICITY OF OHE

- 10.1 In simple catenary system, the system of stringing of OHE conductors in the form of ?
 (a) A solid groove contact wire only
 (b) A solid groove contact wire & one solid catenary wire
 (c) A solid , without grooved contact wire & one stranded catenary wire
 (d) A solid grooved contact wire & one stranded catenary wire
- 10.2 In system of stringing of polygonal OHE, the supporting mast holds
 (a) A solid groove contact wire only
 (b) A solid groove contact wire & one solid catenary wire
 (c) Stranded catenary wire only
 (d) A solid grooved contact wire & one stranded catenary wire
- 10.3 Which system is polygonal OHE system?
 (a) Simple catenary system (b) Compound catenary system
 (c) Stitched catenary system (d) All of the above
- 10.4 In polygonal system of OHE, which factor decide to choose any system
 Such as (simple catenary, compound catenary etc.)
 (a) Height of OHE (b) Wind pressure zone
 (c) Speed & current carrying capacity (d) All of the above
- 10.5 In simple catenary system (regulated) , without pre sag in contact wire is suitable upto the maximum speed
 (a) 80 kmph (b) 100 kmph
 (c) 120 kmph (d) 140 kmph
- 10.6 In simple catenary system (regulated) , with 50 mm pre sag in contact wire is suitable upto the maximum speed
 (a) 80 kmph (b) 100 kmph
 (c) 120 kmph (d) 140 kmph
- 10.7 In simple catenary system (regulated) , with 100 mm pre sag in contact wire is suitable upto the maximum speed
 (a) 160 kmph (b) 100 kmph
 (c) 120 kmph (d) 140 kmph
- 10.8 Compound catenary system is suitable upto the maximum speed
 (a) 160 kmph (b) 100 kmph
 (c) 120 kmph (d) 190 kmph

- 10.9 Stitched catenary system (10 Y) is suitable upto the maximum speed
 (a) 160 kmph (b) 140 kmph
 (c) 120 kmph (d) 190 kmph
- 10.10 Composed compound catenary system is suitable upto the maximum speed
 (a) 160 kmph (b) 100 kmph
 (c) 250 kmph (d) 190 kmph
- 10.11 Compound catenary system consists of
 (a) Catenary & contact wire
 (b) Auxiliary catenary & contact wire
 (c) Main catenary, auxiliary catenary & contact wire
 (d) Contact wire
- 10.12 Advantages of compound catenary system
 (a) Current carrying capacity is more
 (b) More uniformity in elasticity
 (c) Either (a) or (b)
 (d) Both (a) & (b)
- 10.13 In compound catenary system , contact wire is supported by auxiliary catenary by means of
 (a) Loop dropper (b) Chain dropper
 (c) Rigid dropper (d) Special steady arm
- 10.14 In compound catenary system , main & auxiliary catenary wire & contact wire should be in
 (a) Same vertical plane
 (b) Main & auxiliary catenary in same vertical plane
 (c) Different vertical plane
 (d) Cannot say
- 10.15 Advantage of simple catenary system over compound catenary system
 (a) light in weight
 (b) Construction & erection is easy
 (c) Breakdown restoration & maintenance is easy
 (d) All of the above
- 10.16 Advantage of compound catenary system over simple catenary system
 (a) More current carrying capacity
 (b) More uniformity in elasticity
 (c) Avoiding hard spot at suspension point
 (d) All of the above
- 10.17 Curvilinear OHE system is used in Indian Railway for
 (a) Sharp curve (b) Siding
 (c) Main line (d) Not used

- 10.18 In stitched catenary system , a short length of supplementary catenary (say 10 m) is provided at
 (a) Support (b) Mid span
 (c) Between support & mid span (d) All of the above
- 10.19 In stiched catenary system, a short length of supplementary catenary (say 10 m) is provided at support to improve
 (a) Mechanical strength (b) More uniformity in elasticity
 (c) Current carrying capacity (d) All of the above
- 10.20 Which OHE system provide less push up due to passage of pantograph of the moving train ?
 (a) Tram way OHE (b) Simple catenary system
 (c) Stitched catenary system (d) Compound catenary system
- 10.21 In composed compound catenary system, spring dropper i.e. dampers are used in between
 (a) Main & auxiliary catenary (b) Auxiliary catenary & contact wire
 (c) Bracket assembly (d) All of the above
- 10.22 In composed compound catenary system, spring dropper i.e. damper's
 (a) Suppressed unnecessary vibration (b) Ensure stable current collection
 (c) Less push of OHE (d) All of the above
- 10.23 Push up of OHE is depends upon
 (a) Span length (b) Speed of the train
 (c) Weight of the OHE (d) All of the above
- 10.24 What do you mean by the elasticity of the contact wire ?
 (a) Amount of vertical lift corresponding to vertical static force
 (b) Amount of vertical lift corresponding to weight of the pantograph
 (c) Amount of horizontal lift corresponding to vertical pressure
 (d) All of the above
- 10.25 In entire span length, elasticity of OHE will be
 (a) Maximum at support & minimum at mid span
 (b) Minimum at support & maximum at mid span
 (c) Remains same at support & mid span
 (d) Cannot say
- 10.26 If span length increases , than variation in elasticity of OHE
 (a) Increases (b) Decreases
 (c) Remains same (d) Cannot say
- 10.27 If span length decreases , than variation in elasticity of OHE over a span
 (a) Increases (b) Decreases
 (c) Remains same (d) Cannot say

- 10.28 Maximum elasticity of OHE occurs at mid span, which depends upon
 (a) Tension of OHE (b) Span length
 (c) Vertical static force by pantograph (d) All of the above
- 10.29 Minimum elasticity of OHE occurs at support , which does not depend upon
 (a) Tension of OHE (b) Span length
 (c) Vertical static force by pantograph (d) Weight of OHE
- 10.30 What will be the up lift at mid span (Y_0) due to applied force (P) by the pantograph? while T_1 & T_2 catenary & contact wire tension respectively, where , L = span length
 (a) $Y_0 = PL / 2(T_1 + T_2)$ (b) $Y_0 = PL / 4(T_1 + T_2)$
 (c) $Y_0 = PL^2 / 8(T_1 + T_2)$ (d) $Y_0 = PL / 8(T_1 + T_2)$
- 10.31 What will be the elasticity at mid span (E_0) due to applied force (P) by the pantograph? While, (Y_0) = up lift at mid span
 (a) $E_0 = P.Y_0$ (b) $E_0 = Y_0 / P$
 (c) $E_0 = P(Y_0)^2$ (d) $E_0 = P/Y_0$
- 10.32 Pre sag in contact wire is given in regulated OHE due to
 (a) Pantograph approaching mid span helps to make contact wire horizontal
 (b) Improved current collection at higher speed
 (c) Avoid hogging at low temperature
 (d) All of the above
- 10.33 What may be the cause of contact wire parting ?
 (a) Opening of silver brazed joint (b) Failure of PG clamp & ending cone
 (c) Improper & over tension in contact wire (d) All of the above

CHAPTER 11

OVERLAP AND NEUTRAL SECTION

- 11.1 An arrangement of OHE over a track, where two sets of OHE conductors are run parallel to each other for a short distance & provide smooth passage for pantograph, is called
- (a) Turnout (b) Crossover
(c) Overlap (d) Neutral section
- 11.2 Insulated overlap is required for
- (a) OHE sectioning purpose
(b) To kept OHE in current collection zone at curve
(c) To maintain height of OHE conductors
(d) All of the above
- 11.3 In AC traction, distance between two OHE's conductor in insulated overlap is kept
- (a) 500 mm. (b) 380 mm.
(c) 300 mm. (d) 200 mm.
- 11.4 In AC traction, distance between two OHE's conductor in un-insulated overlap is kept
- (a) 375 mm (b) 300 mm
(c) 150 mm (d) 200 mm
- 11.5 Un-insulated overlap is provided in OHE because
- (a) To restrict span length (b) To restrict tension length
(c) Quick isolation of OHE (d) All of the above
- 11.6 In AC traction, how many spans are required to construct an overlap on tangent track
- (a) One span (b) Two span
(c) Three span (d) Four span
- 11.7 In AC traction, how many spans are required to construct an overlap on curve track
- (a) One span (b) Two span
(c) Three span (d) Four span
- 11.8 Normally, insulated overlap are employed at the location
- (a) SSP (b) FP
(c) Booster transformer's location (d) All of the above
- 11.9 In four span insulated overlap, the distance between the centre of the four span insulated overlap & anticreep should not be more than
- (a) 800 m (b) 750 m
(c) 600 m (d) 450 m

- 11.10 Why distance between the centre of the four span insulated over lap & anti-creep restricted upto 600 m ?
- To ensure satisfactory clearance between bracket assembly
 - To maintain uniform tension
 - Proper gradient of contact wire
 - Blow-off within limit
- 11.11 In AC traction, cut-in insulators are provided at insulated overlap, the distance of cut-in insulator from the mast is
- 18 m
 - 9 m
 - 4.5 m
 - 2 m
- 11.12 The normal desirable length of zone, where pantograph contacts both contact wires in overlap will be
- 1 m
 - 4.5 m
 - 6 m to 9 m
 - 18 m
- 11.13 In three span insulated overlap arrangement, centre span or overlap span should not be less than
- 67.5 m
 - 54 m
 - 58.5 m
 - 63 m
- 11.14 In three span un-insulated overlap arrangement, centre span or overlap span should not be less than
- 67.5 m
 - 54 m
 - 58.5 m
 - 63 m
- 11.15 A short dead section of OHE, which separates two adjoining elementary section & provide smooth passage for pantograph is called
- Insulated overlap
 - Un-insulated overlap
 - Neutral section
 - All of the above
- 11.16 Normally, which type of neutral section have been adopted by Indian Railways
- Overlap type
 - PTFE type neutral section
 - Short neutral section comprising section insulator assembly
 - All of the above
- 11.17 Minimum effective neutral section length is required in overlap type neutral section
- 49.5 m
 - 54 m
 - 63 m
 - 41 m
- 11.18 Which type of neutral section, you prefer in heavily graded or suburban section?
- Overlap type
 - PTFE type neutral section
 - Short neutral section comprising section insulator assembly
 - None of the above

- 11.19 The length of PTFE type neutral section is
 (a) 5.163 m (b) 5.64 m
 (c) 5.92 m (d) 6.21 m
- 11.20 PTFE stands for
 (a) Plastic Tetra Floro Ethane (b) Poly Thermo Finials Ethane
 (c) Poly Tetra Floro Ethane (d) Poly Tetra Floro Ethylene
- 11.21 The effective neutral section length of minimum 41 m has been designed for overlap type neutral section ,due to
 (a) Three loco(old type) attached each other , front panto of 1st loco & rear panto of 3rd loco are raised. This panto to panto distance less than 41 m.
 (b) One loco(old type) attached in train ,front panto & rear panto are raised . This panto to panto distance less than 41 m.
 (c) Three loco(old type) attached each other, rear panto of 1st loco & front panto of 3rd loco are raised. This panto to panto distance less then 41 m.
 (d) None of the above.
- 11.22 The tension length of conventional i.e. overlap type neutral section is restricted to
 (a) 600 m (b) 750 m
 (c) 800 m (d) 1500 m
- 11.23 How many spans are required to consist an overlap type neutral section
 (a) 4 (b) 5
 (c) 6 (d) 7
- 11.24 Length of central span in overlap type neutral section is restricted upto
 (a) 49.5 m (b) 54.0 m
 (c) 63.0 m (d) 67.5 m
- 11.25 In overlap type of neutral section, the stagger of both OHE's are chosen in such a way that the clearance between both OHE's in entire central span should not be less than
 (a) 320 mm (b) 375 mm
 (c) 500 mm (d) 1000 mm
- 11.26 PTFE type of neutral section provided on
 (a) mid span (b) 1/3 of span
 (c) 1/10 th of span (d) Symmetrically on either side of the support
- 11.27 PTFE type of neutral section is suitable upto the speed
 (a) 70 KMPH (b) 100 KMPH
 (c) 200 KMPH (d) 140 KMPH
- 11.28 Stagger at PTFE type Neutral section assembly is
 (a) Zero or maximum 100 mm. (b) 100 mm or maximum 200 mm
 (c) 200 mm or maximum 300 mm (d) 300 mm or maximum 380 mm

- 11.29 Adoption of neutral section in section insulator are to be avoided on main running lines because
 (a) Heavy weight (b) Speed restriction
 (c) Frequent maintenance (d) All of the above
- 11.30 In PTFE type neutral section assembly, Anti torsion droppers are used for
 (a) Good current collection at higher speed (b) To prevent oscillation of OHE
 (c) Push up of contact wire very gradually (d) All of the above
- 11.31 Catenary insulator of PTFE Neutral section comprises
 (a) Resin bonded glass fiber (b) Poly venial chloride
 (c) XLPE (d) Ancholite
- 11.32 The caution boards to are provided to attend the driver of train show the distance of neutral section location what will be the location of both caution boards from the Neutral section
 (a) 100 m.& 500 m (b) 2000 m. & 1000 m
 (c) 500 m. & 250 m (d) 250 m. & 150 m
- 11.33 Which factor should be taken into account to locate neutral section
 (a) Signal location (b) Gradient of section
 (c) Level Crossing gate (d) All of above
- 11.34 On tangent track before neutral section, signal location should not be less than
 (a) 600 m. (b) 500 m.
 (c) 400 m. (d) 300 m.
- 11.35 On tangent track after neutral section, signal location should not be less than
 (a) 600 m (b) 400 m
 (c) 300 m (d) 200 m
- 11.36 1 in 300 gradient track before neutral section, signal location should not be less than
 (a) 1600 m (b) 300 m
 (c) 600 m (d) 400 m
- 11.37 1in 300 gradient track, after neutral section, signal location should not be less than
 (a) 1600 m (b) 800 m
 (c) 600 m (d) 400 m
- 11.38 1 in 200 gradient track before neutral section, signal location should not be less than
 (a) 2700 m (b) 2500 m
 (c) 2100 m (d) 1600 m
- 11.39 1 in 200 gradient track after neutral section, signal location should not be less than
 (a) 2500 m (b) 1600 m
 (c) 1800 m (d) 1250 m

CHAPTER 12

TURN OUTS & CROSSOVERS

- 12.1 Which is related to mechanical clearance
- (a) At cross over, min track separation for erecting section insulator
 - (b) Implantation
 - (c) ODC
 - (d) all of the above
- 12.2 Which type of turn out is best for main line
- (a) Over lap type
 - (b) Knuckle type
 - (c) Cross type
 - (d) None of the above
- 12.3 At the obligatory location, turn out contact wire is keptmm above from the main line contact wire
- (a) 100 mm
 - (b) 50 mm
 - (c) 20 mm
 - (d) 5 mm
- 12.4 The arrangement of over lap type turn out will be in
- (a) One span
 - (b) Two spans
 - (c) Three spans
 - (d) Four spans
- 12.5 The arrangement of knuckle type turn out will be in
- (a) One span
 - (b) Two spans
 - (c) Three spans
 - (d) Four spans
- 12.6 The arrangement of cross type turn out will be in
- (a) One span
 - (b) Two spans
 - (c) Three spans
 - (d) Four spans
- 12.7 Which type of turn out is most suitable for high speed OHE
- (a) Knuckle type
 - (b) Cross type
 - (c) Over lap type
 - (d) All of the above
- 12.8 In overlap type turn out, the normal desirable length of zone, where the panto contacts both contact wire will be in
- (a) 500 mm
 - (b) 1 m
 - (c) 6 m – 9 m
 - (d) 12 m
- 12.9 During the movement of panto from cross over to main line, take-in Should be within
- (a) 400 mm
 - (b) 450 mm
 - (c) 650 mm
 - (d) 900 mm

- 12.10 The obligatory structure of turn out should be located between the points where the separation between the main & turn out track is between
- (a) 1000 mm -2000 mm (b) 100 mm- 500 mm
(c) 0 mm-500 m m (d) 700 mm - 150 m
- 12.11 The ideal location of obligatory mast on either side of theoretical centre of turn out is
- (a) 1 m (b) 2 m
(c) 4.5 m (d) 3 m
- 12.12 In cross type turnout, T/O contact wire is just over the M/L contact wire & both contact wire is fixes each other by small piece of contact wire and crossing clips due to
- (a) To maintain proper stagger
(b) To prevent below-off
(c) To prevent relative movement between both contact wires
(d) To maintain height of both contact wire
- 12.13 In cross type turnout, T/O contact wire is just over the M/L contact wire & both contact wire is fixes each other by small piece of contact wire and PG clamps , i.e a bridge known as
- (a) Cross contact bar (b) Cross knuckle bar
(c) Fiber rod (d) Anti movement rod
- 12.14 A cross type turnout is suitable for
- (a) Main line (b) Only yard line
(c) Either main line or yard line (d) Cannot say
- 12.15 Which type of turnout is direct anchoring in one span
- (a) Overlap type (b) Overlap type & cross type
(c) Overlap type & Knuckle type (d) Cross type & Knuckle type
- 12.16 In knuckle type turnout, At obligatory location the angle of turnout OHE between direction of the anchoring & direction of turnout should not be more than
- (a) 30 degree (b) 60 degree
(c) 90 degree (d) 120 degree
- 12.17 What will happen, if angle 120 degree at obligatory in turnout OHE structure in turnout contact wire
- (a) Stagger may be out
(b) Height cannot be maintained
(c) 50 mm. gap between main line & turnout contact wires cannot be maintained
(d) Tension increased on contact clip & steady arm
- 12.18 Obligatory structure is required to be provided at
- (a) Bridge piers (b) Before & after over line structure
(c) Cross over & turnout (d) All of the above

- 12.19 Inspection of turn out /cross over OHE should be carried out by the tower wagon with the direction & movement of tower wagon as
- | | |
|--------------------------------|--------------------------------|
| (a) From main line to turn out | (b) From turn out to main line |
| (c) On main line | (d) All of the above |
- 12.20 At obligatory location, the horizontal separation between main line contact wire & cross over contact wire should not be less than
- | | |
|------------|------------|
| (a) 200 mm | (b) 320 mm |
| (c) 100 mm | (d) 50 mm |
- 12.21 The height of cross over contact wire should be maintained 50 mm above from main line contact wire in entire danger zone at either side of obligatory location which falls within
- | | |
|---------------------------|---------------------------|
| (a) 5 m towards turn out | (b) 10 m towards turn out |
| (c) 15 m towards turn out | (d) 20 m towards turn out |

CHAPTER 13**SECTION INSULATOR, 25 KV AC JUMPERS**

- 13.1 A device, which installed in contact wire to separate two elementary section & provide smooth passage for pantograph is called
- (a) Insulated overlap (b) Section insulator
(c) Bracket Assembly (d) Cut-in insulator
- 13.2 At section insulator location , encumbrance should not be less than
- (a) 152 mm (b) 320 mm
(c) 450 mm (d) 600 mm
- 13.3 At the location of section insulator, stagger of contact wire should be
- (a) zero (b) 200 mm
(c) 300 mm (d) 380 mm
- 13.4 At the location of section insulator, maximum stagger of contact wire may be allowed
- (a) 50 mm (b) 100 mm
(c) 200 mm (d) 300 mm
- 13.5 Which insulator is used in section insulator assembly
- (a) Sectioning insulator (b) Cut in insulator
(c) 9- ton insulator (d) Stay tube insulator
- 13.6 Minimum clearance between section insulator assembly and adjacent track is
- (a) 5.3 m (b) 5 m
(c) 4.751 m (d) 4.725 m
- 13.7 Section insulator works like an insulated overlap with a major difference
- (a) Can be negotiated only at low speed (b) Can be negotiated only at high speed
(c) Can be negotiated at normal speed (d) None of the above
- 13.8 Suitable location of section insulator from the mast on turnout OHE is
- (a) Between $1/3$ & $1/10^{\text{th}}$ of span length (b) Between $1/3$ & $1/5^{\text{th}}$ of span length
(c) Between $1/5^{\text{th}}$ & $1/10^{\text{th}}$ of span length (d) Between $1/2$ & $1/3$ span length
- 13.9 Track separations of section insulator when runner is facing end at the direction of traffic
- (a) 1.72 m (b) 1.92 m
(c) 1.65 m (d) 1.46 m
- 13.10 Track separations of section insulator when runner is trailing end at the direction of traffic
- (a) 1.72 m (b) 1.65 m
(c) 1.52 m (d) 1.45 m

- 13.11 Maximum speed under section insulator with trailing end runner at the direction of traffic is
 (a) 110 KMPH (b) 70 KMPH
 (c) 60 KMPH (d) 40 KMPH
- 13.12 Maximum speed under section insulator with facing end runner at the direction of traffic
 (a) 110 KMPH (b) 70 KMPH
 (c) 60 KMPH (d) 40 KMPH
- 13.13 Horizontal clearance between two runners of ac section insulator is
 (a) 500 mm (b) 460 mm
 (c) 320 mm (d) 200 mm
- 13.14 A bend is given to section insulator's runner, the displacement of bend runner from its straight position is
 (a) 100 mm (b) 72 mm
 (c) 60 mm (d) 40 mm
- 13.15 In AC traction , Which jumper distribute the current between catenary wire & contact wire
 (a) "C" Jumper (b) "F" jumper
 (c) "G" jumper (d) "S" jumper
- 13.16 How many "C" jumpers are used in 1500 m tension length
 (a) 2 (b) 3
 (c) 6 (d) 5
- 13.17 Three "C" jumper's are used in each tension length. Among three, one is provided at anti-creep point where other two "C" jumper's are provided?
 (a) near anticreep location (b) between 2nd & 3rd dropper
 (c) adjacent span length of anticreep location (d) between ATD & anticreep location
- 13.18 Distance of "C" jumper's from the nearest mast is
 (a) 4.5 m (b) 5.6 m
 (c) 6.75 m (d) 9 m
- 13.19 "F" jumpers are provided at
 (a) Insulated overlap (b) Un-insulated overlap
 (c) Turnout (d) Anti creep point
- 13.20 "F" jumpers is provided in both anchoring span of insulated overlap between
 (a) Catenary & contact wire of OOR(out of run) OHE
 (b) OOR (out of run) OHE & IR(in run) OHE
 (c) Catenary & contact wire of IR OHE
 (d) Across cut in insulator
- 13.21 "F" jumpers is also called
 (a) cut in jumper (b) continuity jumper
 (c) flexible jumper (d) potential equalizer

- 13.22 In Un-insulated overlap, two OHE's are connected together by means of jumper , is called
- (a) "C" jumper (b) "F" jumper
(c) "G" jumper (d) "S" jumper
- 13.23 "G" jumper is used at
- (a) Insulated overlap
(b) Turnout & Cross over
(c) Both un insulated overlap & Turn out & Cross over
(d) Un insulated overlap
- 13.24 Length of "C" jumper is
- (a) 1.2 m (b) 1.5 m
(c) 2.0 m (d) 4.5 m
- 13.25 Cross section area of "C" jumper is
- (a) 50 sq. mm (b) 97 sq. mm
(c) 105 sq. mm (d) 107 sq. mm
- 13.26 Length of "F" jumper is
- (a) 1.5 m (b) 2.0 m
(c) 3.0 m (d) 4.5 m
- 13.27 Cross section area of "F" jumper is
- (a) 50 sq. mm (b) 60 sq. mm
(c) 97 sq. mm (d) 107 sq. mm
- 13.28 Distance of "F" jumper from the nearest mast is
- (a) 4.5 m (b) 5.6 m
(c) 6.75 m (d) Not fixed
- 13.29 Length of "G" jumper is
- (a) 1.2 m (b) 1.5 m
(c) 2.0 . m (d) 4.5 m
- 13.30 Cross section area of "G" jumper is
- (a) 50 sq. mm (b) 97 sq. mm
(c) 105 sq. mm (d) 107 sq. mm
- 13.31 Distance of "G" jumper from the nearest mast is
- (a) 4.5 m (b) 5.6 m
(c) 6.75 m (d) Not fixed
- 13.32 "C" jumper are connected in the direction of traffic with the free end
- (a) Facing (b) Trailing
(c) Either facing or trailing (d) Neither facing or trailing

- 13.33 “C” jumper are connected in the direction of traffic with the free end facing due to
- (a) To prevent open the strands of jumper by air pressure which exerted by pantograph
 - (b) To avoid panto entanglement with jumper
 - (c) To avoid hard spot in contact wire
 - (d) To provide un interrupted path for pantograph
- 13.34 PG clamp have
- (a) One groove
 - (b) Two parallel groove
 - (c) Three parallel groove
 - (d) Four parallel groove
- 13.35 PG clamp is used to
- (a) Hold the contact wires at joint
 - (b) Hold the catenary wires at joint
 - (c) Joined two conductors
 - (d) None of the above
- 13.36 How many PG clamps are required for ‘G’ jumper ?
- (a) 4
 - (b) 8
 - (c) 6
 - (d) 3
- 13.37 At present, isolator jumper for providing connection between OHE and isolator through lug , which should be
- (a) Soldered
 - (b) Welded
 - (c) Fasteners
 - (d) Riveted
- 13.38 Some times, isolator jumper is coming out from the lug due to improper soldering . To over coming this problem, it has been decided to provide additional piece of catenary wire with the help of two PG clamp & special lug . The length of additional catenary wire will be
- (a) 50 cm
 - (b) 80 cm
 - (c) 100 cm
 - (d) 120 cm

CHAPTER 14**BRACKET ASSEMBLY**

- 14.1 Cantilever assembly, both insulators are located nearer to the mast
(a) To avoid contamination due to steam & diesel locomotives
(b) To hold the tubes in proper tension
(c) To Cantilever assembly is swiveling type
(d) To avoid transferring the weights on OHE
- 14.2 The arrangement of the cantilever assembly depends upon the
(a) Height of contact wire (b) Setting distance
(c) Stagger (d) All of the above
- 14.3 The arrangement of the cantilever assembly does not depend upon the
(a) Height of contact wire (b) Super elevation
(c) Encumbrance (d) None of the above.
- 14.4 The tubes of the cantilever assembly are made out of
(a) Aluminum bronze (b) Aluminum
(c) Electrolyte copper (d) Galvanized steel
- 14.5 Which is not a part of the cantilever assembly ?
(a) Steady arm (b) Adjuster sleeve
(c) Anti wind clamp (d) PG clamp
- 14.6 What will be the remaining length of the bracket tube beyond the centre of the catenary suspension bracket for future adjustment?(As per RDSO latter no.TI/OHE/GA/3013 dated14.05.3013)
(a) 400 mm to 300 mm (b) 400 mm to 100 mm
(c) 150 mm to 200 mm (d) 50 mm to 100 mm
- 14.7 In cantilever assembly, what should be the minimum distance between register arm hook clamp & top of the bracket tube insulator
(a) 100 mm (b) 150 mm
(c) 200 mm (d) 300 mm
- 14.8 In cantilever assembly, in case of push off, projection of register arm beyond the steady arm clamp should be (As per RDSO latter no.TI/OHE/GA/3013dated14.05.3013)
(a) 50 mm to 300 mm (b) 150 mm to 200 mm
(c) 150mm to 400 mm (d) 250 mm to 500 mm
- 14.9 In cantilever assembly, distance between the bottom of contact wire & register arm axis in normal steady arm should be on tangent track (As per RDSO latter no. TI/OHE/GA/3013 dated14.05.3013)
(a) 50 mm to 300 mm (b) 100 mm to 400 mm
(c) 150 mm to 400 mm (d) 200 mm to 250 mm

- 14.10 In cantilever assembly, distance between the bottom of contact wire & register arm axis (bend tubular steady arm & BFB steady arm) should be on curve (As per RDSO latter no.TI/OHE/GA/3013dated14.05.3013)
- (a) 50 mm to 300 mm (b) 250 mm to 320 mm
(c) 150 mm to 250 mm (d) 250 mm to 500 mm
- 14.11 In cantilever assembly, distance between register arm tube & anti wind clamp strap should be
- (a) 3 to 5 cm (b) 5 to 9 cm
(c) 9 to 12.5 cm (d) 15 to 18 cm
- 14.12 Why gap should be required between register arm tube & anti wind clamp strap
- (a) To avoid hard spot (b) To hold the register arm
(c) To maintain proper height & stagger (d) To hold steady arm
- 14.13 What is the material of normal steady arm (i.e. BFB section) ?
- (a) Aluminum alloy (b) Aluminum bronze
(c) G.I. (d) Cadmium copper
- 14.14 In pull of arrangement of cantilever assembly, location of steady arm will be, in between
- (a) Mast & contact wire (b) Contact wire & centre line of the track
(c) Out of centre line of track (d) None of above
- 14.15 In push off arrangement of cantilever assembly, location of steady arm will be, in between
- (a) Beyond contact & centre line of track (b) Mast & contact wire
(c) Contact wire & centre line of the track (d) All of above
- 14.16 Standard size of normal steady arm (BFB type) in cantilever assembly
- (a) 32 x 31 mm (b) 36 x 37 mm
(c) 42 x 41 mm (d) 49 x 50 mm
- 14.17 In cantilever assembly, standard size of steady arm (i.e. inner dia /outer dia)
- (a) 25 mm /30 mm (b) 26.2 mm /31.7 mm
(c) 28.4 /33.7mm (d) 30 mm /38 mm
- 14.18 In cantilever assembly, standard size of register arm (i.e. inner dia /outer dia)
- (a) 25 /30 mm. (b) 20 /25 mm.
(c) 28.4 /33.7 mm. (d) 30 /38mm.
- 14.19 In cantilever assembly standard size of Bracket tube (i.e. inner dia /outer dia)
- (a) 30 /38 mm. (b) 40 /49 mm.
(c) 28.4 /33.7 mm. (d) 25 /30 mm.
- 14.20 Cantilever assembly should be of swiveling types to achieve
- (a) Proper height of catenary & contact wire (b) Stagger of contact wire
(c) Minimum radial tension on tubes (d) Sag in the contact wire constant in entire tension length

- 14.21 Cantilever dimensions namely A,B,C,&D, fixes position of various clamps to get the required position of catenary & the contact wire. The dimensions A&B fixes the position of
- (a) Catenary wire (b) Contact wire
(c) Both catenary & contact wire (d) Neither catenary & contact wire
- 14.22 Cantilever dimensions namely A,B,C,&D, fixes position of various clamps to get the required position of catenary & the contact wire. The dimensions C&D fixes the position of
- (a) Catenary wire (b) Contact wire
(c) Both catenary & contact wire (d) Neither catenary & contact wire
- 14.23 Cantilever dimension “A” shows the distance between
- (a) Axis of bracket tube mast fitting & top of bracket tube
(b) Center of hook of catenary suspension bracket & top of stay arm insulator
(c) Stay arm fitting to top of bracket tube
(d) Stay arm fitting to centre line of the track
- 14.24 Cantilever dimension “B” shows the distance between
- (a) Axis of bracket tube mast fitting & top of bracket tube
(b) Axis of vertical swivel & the axis of the catenary suspension bracket
(c) Mast fitting & top of bracket tube
(d) Mast & catenary suspension bracket
- 14.25 Cantilever dimension “C” shows the distance between
- (a) Axis of the vertical swivel to axis of register arm hook in horizontal position
(b) Axis of the vertical swivel to axis of register arm hook in inclined position
(c) Axis of the vertical swivel to register arm clamp
(d) Axis of the vertical swivel to contact wire
- 14.26 Cantilever dimension “D” shows the distance between
- (a) Vertical mast fitting to centre line of the track
(b) Vertical mast fitting to register arm hook and
(c) Vertical mast fitting to the contact wire
(d) The horizontal distance between the centre of register arm hook & the axis of the catenary suspension bracket.
- 14.27 In cantilever assembly large size of bracket tube (i.e. inner dia /outer dia)
- (a) 30 /38 mm. (b) 40 /49 mm
(c) 28.4 /33.7 mm (d) 25 /30 mm

CHAPTER 15

ELECTRICAL CLEARANCES AND LIGHTNING ARRESTOR

- 15.1 Minimum electrical clearance long duration (vertical) between live & earth for 25 kV AC is..... As per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
- (a) 500 mm (b) 250 mm
(c) 270 mm (d) 220 mm
- 15.2 Minimum electrical clearance long duration (horizontal) between live & earth for 25 kV AC is..... As per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
- (a) 340 mm (b) 250 mm
(c) 270 mm (d) 220 mm
- 15.3 Minimum electrical clearance short duration (vertical) between live & earth for 25 kV AC is..... As per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
- (a) 390 mm (b) 200 mm
(c) 220 mm (d) 340 mm
- 15.4 Minimum electrical clearance short duration (horizontal) between live & earth for 25 kV AC is..... As per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
- (a) 390 mm (b) 270 mm
(c) 200 mm (d) 340 mm
- 15.5 Minimum working clearance for 25 kV AC is
- (a) 500 mm (b) 1.0 m
(c) 2.0 m (d) 3.0 m
- 15.6 Minimum electrical clearance, in which an earthed body is brought momentarily near a charged body or vice-versa, this clearance is called
- (a) Long duration (b) Short duration
(c) Both long & short duration (d) Can not say
- 15.7 Minimum electrical clearance, in which an earthed body is kept for some time near a charged body or vice-versa, this clearance is called
- (a) Long duration (b) Short duration
(c) Both long & short duration (d) Cannot say
- 15.8 Lightning arrester prevents OHE from
- (a) Surge & transient voltage (b) Corrosion of -ve path conductor
(c) Back e.m.f. (d) All of the above

- 15.9 Excessive voltage due to surge is bypassed by lightning arrester into
- (a) Atmosphere in the form of electromagnetic energy
 - (b) Atmosphere in the form of electro static energy
 - (c) Earth
 - (d) All of the above
- 15.10 Working principle of valve or thyrite type lightning arrester is
- (a) (+) ve resistance coefficient
 - (b) (-) ve resistance coefficient
 - (c) Ohm's law
 - (d) None of the above
- 15.11 Non linear resistance is the property of thyrite material i.e. when current increases than resistance of the thyrite
- (a) Increases
 - (b) Decreases
 - (c) Remains same
 - (d) Can not say
- 15.12 Allowance for vertical oscillation of contact wire under influence of moving pantographs as per as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD (BG) 2004.
- (a) 20 mm
 - (b) 30 mm
 - (c) 40 mm
 - (d) 50 mm

CHAPTER 16

BONDING & EARTHING

- 16.1 In AC traction return current flows through
 (a) Traction rail only (b) Earth only
 (c) Either traction rail or Earth (d) None of the above
- 16.2 In AC traction, track bonding is done upto the distance either side from the FP
 (a) 5 km (b) 3 km
 (c) 2 km (d) 1 km
- 16.3 In AC traction, why track bonding is done upto 1 KM from either side of the FP
 (a) Beyond this distance return current goes through RC
 (b) Beyond this distance return current disappears into Earth
 (c) Beyond this distance return current is not necessary to come upto TSS
 (d) All of the above
- 16.4 In AC traction, cross section area of GI/MS flat for track bonding
 (a) 200 mm² (b) 240 mm²
 (c) 300 mm² (d) 350 mm²
- 16.5 In 25 kV AC OHE, normal capacity of Lightning Arrester (heavy duty type)
 (a) 25 kV (b) 42 kV
 (c) 33 kV (d) 66 kV
- 16.6 “Non current carrying parts of electrical machine is connected to the general mass of the earth through suitable size of the conductor” is called
 (a) Muffing (b) Overlapping
 (c) Earthing (d) Lightning arrester
- 16.7 What do you mean the term “general mass of the earth” ?
 (a) Whose reference potential is less than from system voltage
 (b) Whose reference potential is more than from system voltage
 (c) Whose reference potential is equal to the system voltage
 (d) Whose reference potential is zero
- 16.8 Normally, which type earth electrode is preferred for earthing in 25 kV AC Installations
 (a) Plate type (b) Pipe type
 (c) Strip type (d) None of the above
- 16.9 Minimum earth resistance when not specified should not be more than
 (a) 9 ohm (b) 10 ohm
 (c) 5 ohm (d) 2.5 ohm

- 16.10 Minimum earth resistance for 25 kV TSS should not be more than
 (a) 5 ohm (b) 2 ohm
 (c) 1 ohm (d) 0.5 ohm
- 16.11 Minimum earth resistance for 25 kV switching station (SSP / SP etc) should not be more than
 (a) 5 ohm (b) 2 ohm
 (c) 1 ohm (d) 0.5 ohm
- 16.12 During fault, the potential of the electrode is much above the general mass of the earth. This potential is drain into the general mass of the earth upto zero, this phenomena is called
 (a) Voltage gradient (b) Current gradient
 (c) Resistance gradient (d) All of the above
- 16.13 What do you mean by the term 'potential or voltage gradient' in earthing system ?
 (a) Voltage drop between live & earth electrode
 (b) Voltage drop between live & non current carrying parts of the system
 (c) Voltage drop between earth electrode & surrounding soil
 (d) Voltage drop between two points on the earth surface around the earth electrode
- 16.14 The resistance area of two earth electrodes should
 (a) Be as closed as possible (b) Same resistance area
 (c) Not to be overlap each other (d) All of the above
- 16.15 Which factor increases the resistance of the earthing ?
 (a) Aging of the electrode (b) Reducing moisture contents in soil
 (c) Washing out of the salt (d) All of the above
- 16.16 Normally salts are washed out through soils in the period of
 (a) 1-2 years (b) 4-5 years
 (c) 6-7 years (d) 8-9 years
- 16.17 The soil resistivity depends upon the
 (a) Grain size of the soil (b) Chemical composition of the soil
 (c) Moisture contents (d) All of the above
- 16.18 Moisture contents in the soils should not be less than (in the term of equivalent weight of the soil)
 (a) 10% (b) 20%
 (c) 30% (d) 40%
- 16.19 Which factor reduced the earth resistance
 (a) Packing of the earth pit with powder coke & soft soil (b) Providing salt
 (c) Sprinkle water (d) All of the above

- 16.20 If earth resistance is still showing high values after providing water, coke & salt. How you solve same problem ?
- (a) Removed earth connection
 - (b) Additional earthing in series
 - (c) Additional earthing in parallel, whose earth resistance area should be in same zone
 - (d) Additional earthing in parallel, whose earth resistance area should be in separate zone
- 16.21 Code of practice for earthing is
- (a) IS:3043-1987
 - (b) IS:3001-1987
 - (b) IS:3007-1987
 - (d) IS: 3045- 1987
- 16.22 Object & primary requirement of a good earthing system i.e. It should be
- (a) Stabilize circuit potential with respect to ground & limit overall potential rise
 - (b) Protect men & materials
 - (c) Provided low impedance path to faulty current
 - (d) All of the above

CHAPTER 17

MAST, FABRICATED MAST AND PORTALS

- 17.1 Full form of RSJ mast
 (a) Rolled State Joint (b) Rail Steel Joint
 (c) Rolled Steel Joist (d) Rolled Straight Joint
- 17.2 Full form of BFB mast
 (a) Bent Forzge Beam (b) Broad Forge Beam.
 (c) Broad Frange Bent (d) Broad Flanged Beam
- 17.3 Full form of TTC mast is
 (a) Track Tangent Cantilever (b) Two /Three Cantilever
 (c) Trouble Track Cantilever (d) Two /Three Track cantilever
- 17.4 Size of RSJ Mast
 (a) 152 mm x 152 mm (b) 203 x 203 mm
 (c) 152 mm x 203 mm (d) 300 mm x 152 mm
- 17.5 Size of BFB Mast
 (a) 152 mm x 152 mm (b) 200 x 200 mm
 (c) 400 mm x 400 mm (d) All of above
- 17.6 Which is K- series mast
 (a) K- 150 (b) K-200 (c) K-250 (d) All of above
- 17.7 Width of K-series mast
 (a) 152 mm (b) 200 mm (c) 250 mm (d) 300 mm
- 17.8 Width of TTC mast
 (a) 152 mm (b) 250 mm (c) 450 mm (d) 300 mm
- 17.9 Size of “N” type portal
 (a) 450 x 450 mm (b) 550 x 550 mm.
 (c) 300 x 300 mm. (d) 400 x 250 mm.
- 17.10 Size of “O” type portal
 (a) 450 x 450 mm (b) 550 x 550 mm
 (c) 300 X 300 mm (d) 600 x 600 mm
- 17.11 Size of “R” type portal
 (a) 450 x 450 mm (b) 550 x 550 mm.
 (c) 600 x 600 mm. (d) 650 x 650 mm.

- 17.12 Size of “P” type portal
 (a) 450 x 450 mm (b) 550 x 550 mm
 (c) 300 x 300 mm (d) 400 x 250 mm
- 17.13 Size of “G” type portal
 (a) 450 x 450 mm (b) 400 x 400 mm
 (c) 600 x 600 mm (d) 400 x 250 mm
- 17.14 Size of Special BEB portal
 (a) 152 x 152 mm (b) 152 x 304 mm
 (c) 200 x 200 mm (d) 300 x 300 mm
- 17.15 In BFB mast
 (a) Flange & depth (web) same (b) Small flange & large web
 (c) Large flange & small web (d) Can not say
- 17.16 In RSJ mast
 (a) Flange & depth (web) same (b) Large flange & small web
 (c) Small flange & large web (d) Can not say
- 17.17 RSJ mast is suitable to resist
 (a) Both Bending & Twisting movement
 (b) Good for bending movement but bad for twisting movement
 (c) Good for twisting movement but bad for bending movement
 (d) Neither Bending & Twisting movement
- 17.18 BFB mast is suitable to resist
 (a) Both Bending & Twisting movement
 (b) Good for bending movement but bad for twisting movement
 (c) Good for twisting movement but bad for bending movement
 (d) Neither Bending & Twisting movement
- 17.19 Dimension of “B” series mast is same as “K” series except
 (a) Both channel welded together by lacing of plates
 (b) Both channel welded together horizontally by plates
 (c) Both channel welded together horizontally by rods
 (d) Both channel welded together of horizontally by angles
- 17.20 Separate structures for each track is much useful than the bridge structures, due to
 (a) Electrical separation of each track
 (b) Mechanical separation of each track
 (c) Both electrical & mechanical separation of each track
 (d) All of the above
- 17.21 Approximate per meter weight of RSJ mast is
 (a) 30.4 kg (b) 37.4 kg (c) 53.3 kg (d) 69 kg

- 17.22 Approximate per meter weight of BFB mast (152x152mm) is
 (a) 23.12 kg (b) 30.4 kg (c) 53.3 kg (d) 34 kg
- 17.23 Approximate per meter weight of K-200 mast is
 (a) 30.75 kg (b) 42.65 kg (c) 48.64 kg (d) 56.10 kg
- 17.24 Approximate per meter weight of K-225 mast is
 (a) 42.65 kg (b) 48.64 kg (c) 56.10 kg (d) 65.11 kg
- 17.25 Approximate per meter weight of K-250 mast is
 (a) 65.11 kg (b) 48.64 kg (c) 56.10 kg (d) 69.12 kg
- 17.26 BFB mast is suitable at
 (a) Normal location at straight track (b) Anchoring location
 (c) At cross over (d) At curve track
- 17.27 RSJ mast is suitable at
 (a) Normal location (b) Anchoring location
 (c) flatter curve (d) All of the above
- 17.28 Fabricated mast is suitable to resist
 (a) Both bending movement & twisting movement.
 (b) Bending movement only
 (c) Twisting movement only
 (d) Neither bending movement nor twisting movement.
- 17.29 What is the disadvantage of RSJ mast compare to fabricated K-200 mast
 (a) More weight (b) Wind load is greater
 (c) Deflection of mast is more due to different loads (d) All of the above
- 17.30 What is the disadvantage of fabricated K-200 mast compare to RSJ mast
 (a) More width across the track, where track separation is not sufficient
 (b) Permanent load is greater
 (c) Deflection of mast at contact wire level is more due to different loads
 (d) All of the above
- 17.31 "N" type portal is used to cover maximum
 (a) 4 tracks/8 OHE's (b) 4 tracks /4 OHE's
 (c) 4 tracks/6 OHE's (d) 6 tracks /8 OHE's
- 17.32 "O" type portal is used to cover maximum
 (a) 6 tracks /6 OHE's (b) 8 tracks /8 OHE's
 (c) 6 tracks /9 OHE's (d) 6 tracks /12 OHE's
- 17.33 "R" type portal is used to cover maximum
 (a) 8 tracks /10 OHE's (b) 8 tracks /12 OHE's
 (c) 8 tracks /16 OHE's (d) 8 tracks /20 OHE's
- 17.34 "P" type portal is used to cover maximum
 (a) 4 tracks /8 OHE's (b) 4 tracks /6 OHE's
 (c) 6 tracks /6 OHE's (d) 6 tracks /8 OHE's

- 17.35 “G” type portal is used to cover maximum
 (a) 6 tracks /6 OHE’s (b) 6 tracks /10 OHE’s
 (c) 6 tracks /12 OHE’s (d) 5 tracks /12 OHE’s
- 17.36 Special BFB type portal is used to cover maximum
 (a) 5 tracks /5 OHE’s (b) 4 tracks /8 OHE’s
 (c) 4 tracks /6 OHE’s (d) 5 tracks /6 OHE’s
- 17.37 Maximum clean span for “N” type portal
 (a) 10-20 m (b) 1 –10 m (c) 20-30 m (d) 30 –40 m
- 17.38 Maximum clean span for “O” type portal
 (a) 10-20 m (b) 20-30 m (c) 30-40 m (d) 40-50 m
- 17.39 Maximum clean span for “R” type portal
 (a) 20-30 m (b) 30-40 m (c) 40-50 m (d) 50-55 m
- 17.40 Vertical member of the structure which one end is embedded in foundation is called
 (a) Mast (b) Upright
 (c) Both “a” & “b” is right (d) Neither “a” & “b” is right
- 17.41 Horizontal member of the structure which joined both uprights is called
 (a) Mast (b) Arm (c) Tower (d) Boom
- 17.42 Angle, which support between boom and upright is called
 (a) Arm (b) Drop arm (c) Mast (d) Knee Bracing
- 17.43 Dimension of “N” type portal angle is
 (a) 65 x 65 x 6mm (b) 70 x70 x 8mm
 (c) 65 x 65 x 8mm (d) 70 x 70 x8 mm
- 17.44 Dimension of “O” type portal angle is
 (a) 75 x 75 x 6 mm (b) 75 x 75 x 8 mm
 (c) 75 x 75 x 10 mm (d) 80 x 80 x8 mm
- 17.45 Dimension of “R” type portal angle is
 (a) 80 x 80 x 6 mm (b) 75 x 75 x 8 mm
 (c) 75 x 75 x 10 mm (d) 80 x 80 x 8 mm
- 17.46 Diameter of “N” type portal lacing rod is
 (a) 12 mm (b) 16 mm (c) 18 mm (d) 20 mm
- 17.47 Diameter of “O” type portal lacing rod is
 (a) 12 mm (b) 16 mm (c) 18 mm (d) 20 mm
- 17.48 Diameter of “R” type portal lacing rod is
 (a) 12 mm (b) 16 mm (c) 18 mm (d) 20 mm

- 17.49 Portals are used in multi tracks section such as yard ,where
- (a) Track centre to centre is inadequate for independent mast
 - (b) Where vertical load is more.
 - (c) where transverse load is more
 - (d) None of above
- 17.50 OHE can be supported on TTC mast upto the maximum distance from the upright is
- (a) 4.5 m
 - (b) 6 m
 - (c) 9.5 m
 - (d) 10.5 m

CHAPTER 18

FOUNDATIONS

- 18.1 Side bearing foundation is used, where soil bearing pressure is more than
 (a) 1000 kgf / m² (b) 5000 kgf / m²
 (c) 10,000 kgf / m² (d) 25000 kgf / m²
- 18.2 In side bearing foundation , the
 (a) Bending movement on the mast is resist by the soil at base only
 (b) Bending movement on the mast is resist by the soil both sides of the foundation only
 (c) Bending movement on the mast is not only resisted by the soil at the base but also by the both sides of the foundation
 (d) All of above
- 18.3 When forces causing bending movement towards the track the shoulder width should not be less than for side bearing foundation
 (a) 0.1 m (b) 0.3 m
 (c) 0.5 m (d) 0.6 m
- 18.4 When forces causing bending movement away from the track the shoulder width should not be less than for side bearing foundation
 (a) 0.2 m (b) 0.3 m
 (c) 0.4 m (d) 0.5 m
- 18.5 Side gravity foundation is used where
 (a) Soil bearing pressure in more than 11000 kgf / m² and shoulder width is not sufficient
 (b) Soil bearing pressure is less than 11000kgf/ m² and shoulder width is not sufficient
 (c) Soil bearing pressure is less than 11000kgf/ m² and shoulder width is sufficient
 (d) All of above.
- 18.6 In side gravity foundation, to resist pressure developed due to Bending Movement (B.M) the base width of the foundation block extended in the
 (a) Outer side only (b) In side only
 (c) Both side only (d) None of the above
- 18.7 Pure gravity foundation used where
 (a) Bearing pressure is less than 5000 kgs/ m²
 (b) Bearing pressure is more than 11000 kgs/ m²
 (c) Bearing pressure is less than 11000 kgs/ m²
 (d) Bearing pressure is less than 1100 kgs/ m²
- 18.8 In pure gravity foundation, the
 (a) Bending movement on the mast is resist by the soil of base only
 (b) Bending movement on the mast is resist by the soil of base and one side foundation
 (c) Bending movement on the mast is resist by the soil of base and two side of foundation
 (d) Bending movement on the mast is resist by the soil of both side of the foundation

- 18.9 Black cotton (BC) soil is having peculiar characteristics, i.e.
 (a) When the soil is wet it swells
 (b) When the soil is wet it exerts upward pressure
 (c) When the soil is dry, cracks are developed in the soil
 (d) All of the above
- 18.10 In Black Cotton (BC) type foundation, the bottom of the foundation is extended on all four sides, so that super incumbent cone with vertical should not be less than
 (a) 30 degree (b) 45 degree
 (c) 60 degree (d) 75 degree
- 18.11 The length of mast below rail level for regulated OHE should not be less than.
 (a) 1.75 m (b) 1.85 m
 (c) 1.90 m (d) 2.1 m
- 18.12 The length of mast below rail level for unregulated OHE should not be less than.
 (a) 1.75 m (b) 1.85 m
 (c) 1.90 m (d) 2.1 m
- 18.13 The embedment of mast in foundation should not be less than
 (a) 2.9 m (b) 2.21 m
 (c) 1.85 m (d) 1.35 m
- 18.14 The top of the foundation above the surrounding ground level should not be less than
 (a) 50-100 mm (b) 200-300 mm
 (c) 300-400 mm (d) 400-500 mm
- 18.15 Vertical distance between the rail level & top of foundation is known as
 (a) Cess level (b) Encumbrance
 (c) Safety distance (d) None of the above
- 18.16 Cess level is also known as
 (a) Skip distance (b) Step distance
 (c) Setting distance (d) None of the above
- 18.17 The common values of cess level for regulated OHE is
 (a) 0.4 m & 0.6 m (b) 0.1 m & 0.2 m
 (c) 0.3 m & 0.4 m (d) 0.8 m & 0.9 m
- 18.18 The common values of cess level for unregulated OHE is
 (a) 0.1 m & 0.2 m (b) 0.2 m & 0.4 m
 (c) 0.4 m & 0.6m (d) 0.6 m & 0.8 m
- 18.19 The common values of cess level for platform structure is
 (a) 0.4 m & 0.6 m (b) 0.1 m & 0.2 m
 (c) 0.3 m & 0.4 m (d) Zero
- 18.20 Generally guy rod is provided to support anchor structure at the angle of
 (a) $10^0 - 20^0$ (b) $20^0 - 30^0$
 (c) $30^0 - 40^0$ (d) 45^0

- 18.21 Dwarf mast anchoring is used at
 (a) Platform
 (b) Where distance beyond the mast is not available to erect guy rod
 (c) Between two tracks, where track separation is not sufficient
 (d) All of the above
- 18.22 Ratio of Cement, Sand, Ballast, in concrete for normal foundation is
 (a) 1:1:3 (b) 1:2:4
 (c) 1:3:4 (d) 1:3:6
- 18.23 Ratio of Cement, Sand, Ballast, in concrete for special foundation is
 (a) 1:2:3 (b) 1:2:4
 (c) 1:3:6 (d) 1:2:6
- 18.24 Which digit code is used to choose the correct size of foundation in AC traction
 (a) One digit code (b) Two digit code
 (c) Three digit code (d) Four digit code
- 18.25 In three digit code system of foundation, the first digit (100^{th} place) represent the
 (a) Vertical load (b) Bending moment
 (c) Twist moment (d) Wind load
- 18.26 In three digit code system of foundation, the next two digit (i.e 10^{th} or 1^{st} place) represent the magnitude of the
 (a) Axial load (b) Non axial load
 (c) Bending movement (d) None of the above
- 18.27 The stability of foundation is known as the term 'Eccentricity' $A = M/N$ where m = movement of the bottom of foundation, N = total vertical load,
 a = width of foundation of base (across the track) For the stability of foundation
 (a) a (b) $a / 2$
 (c) $a / 4$ (d) $a / 8$

CHAPTER 19

IMPLANTATION

- 19.1 The distance between centre line of the track to the nearest face of the structure is called
 (a) Clear span (b) Track separation (c) Implantation (d) Track clearance
- 19.2 Implantation is also known as
 (a) Skip distance (b) Setting distance (c) Clear span (d) Track separation
- 19.3 Implantation in open (Main) line is
 (a) 2.21 m (b) 2.36 m (c) 2.50 m (d) 2.75 m
- 19.4 Implantation in yard (old) is
 (a) 2.21 m (b) 2.36 m (c) 2.50 m (d) 2.75 m
- 19.5 Implantation in yard (new) is
 (a) 2.21 m (b) 2.75 m (c) 2.50 m (d) 3.0 m
- 19.6 Implantation at platform (B.G.) is
 (a) 4.75 m (b) 4.00 m (c) 5.20 m (d) 3.0 m
- 19.7 Minimum Implantation at obligatory mast is
 (a) 3.0 m (b) 3.2 m (c) 2.5 m (d) 2.75 m
- 19.8 For portal UP right or a mast carrying more than one OHE's, the setting distance should not be less than
 (a) 2.5 m (b) 2.75 m (c) 2.9 m (d) 3.0 m
- 19.9 Implantation for 0 to 2 degree out side curve is
 (a) 2.65 m (b) 2.90 m (c) 2.50 m (d) 2.75 m
- 19.10 Implantation for above 2 degree out side curve is
 (a) 2.65 m (b) 2.90 m (c) 2.50 m (d) 2.75 m
- 19.11 Implantation for inside curve up to 1/2 degree curve is
 (a) 2.65 m (b) 2.90 m (c) 2.50 m (d) 3.00 m
- 19.12 Implantation for inside curve up to 3/4 degree curve is
 (a) 3.05 m (b) 2.90 m (c) 3.25 m (d) 3.00 m
- 19.13 Implantation for inside curve up to 1 1/2 degree curve is
 (a) 3.05 m (b) 3.25 m (c) 3.15 m (d) 3.00 m
- 19.14 Implantation for inside curve up to 6 degree curve is
 (a) 3.25 m (b) 3.30 m (c) 3.35 m (d) 3.5 m
- 19.15 Minimum distance of OHE structure in advance of a signal
 (a) 10 m (b) 20 m (c) 30 m (d) 50 m
- 19.16 Minimum distance of OHE structure in behind of a signal
 (a) 10 m (b) 20 m (c) 30 m (d) 50 m

CHAPTER 20

OHE INSULATORS & CLASSIFICATION OF INSULATIONS AND VOLTAGES

- 20.1 Solid core insulators, which are used in OHE mostly made of
 (a) Porcelain (b) Glass (c) Fiber (d) P.V.C.
- 20.2 In 25 kV AC traction, Stay tube insulator is used in cantilever assembly in between
 (a) Mast fitting & stay tube (b) Mast fitting & bracket tube
 (c) Bracket tube & register arm (d) Register arm & stay tube.
- 20.3 In 25 kV AC traction, Bracket tube insulator is used in cantilever assembly in between :-
 (a) Mast fitting & stay tube (b) Mast fitting & bracket tube
 (c) Bracket tube & register arm (d) Register arm & stay tube
- 20.4 9-Ton insulator is used mainly
 (a) To support catenary & contact on structure (b) Anchoring of OHE conductors
 (c) Support cross span wire (d) Support in section insulator assembly
- 20.5 What do you mean by 9- Ton
 (a) Its tensile strength is 9- ton (b) It sustains 9000 Volt continuously
 (c) It prevents the flow of current up to 9000 amps (d) All of the above
- 20.6 Where post insulators are used ?
 (a) Isolator switch assembly only
 (b) Both in Isolator switch & to maintain clearance under ROB/FOB
 (c) In Section insulator assembly
 (d) In Cantilever assembly
- 20.7 Post insulator is also known as
 (a) Tie rod insulator (b) 9- tones insulator
 (c) Section insulator (d) Pedestal insulator
- 20.8 Sectioning insulator is used in
 (a) Cantilever assembly (b) Section insulator
 (c) Switch assembly (d) Under ROB/FOB
- 20.9 Tie rod insulator is used in
 (a) Cantilever assembly (b) Section insulator
 (c) Isolator Switch assembly (d) Under ROB/FOB
- 20.10 Tie rod insulator is used in isolator switch assembly in between
 (a) Operating rod & moving blade (b) Operating rod & fix contact
 (c) Switch body & fix contact (d) Switch body & moving contact

- 20.11 In 25 kV AC traction, suspension insulator is used to support
 (a) Catenary wire (b) Contact wire
 (c) Return conductor (d) Cross span wire
- 20.12 Length of 9-ton insulator is
 (a) 500 mm (b) 525 mm (c) 542 mm (d) 420 mm
- 20.13 Length of stay tube insulator is
 (a) 500 mm (b) 525 mm (c) 542 mm (d) 420 mm
- 20.14 Length of bracket tube insulator is
 (a) 500 mm (b) 525 mm (c) 542 mm (d) 420 mm
- 20.15 Length of pedestal insulator is
 (a) 500 mm (b) 525 mm (c) 550 mm (d) 420 mm
- 20.16 Length of tie rod insulator is
 (a) 500 mm (b) 525 mm (c) 550 mm (d) 420 mm
- 20.17 Length of sectioning insulator is
 (a) 500 mm (b) 525 mm (c) 500 mm (d) 420 mm
- 20.18 Maximum hot spot temperature for 'Y' class insulating material is
 (a) 75° C (b) 80° C (c) 90° C (d) 95° C
- 20.19 Maximum hot spot temperature for 'A' class insulating material is
 (a) 100° C (b) 105° C (c) 110° C (d) 115° C
- 20.20 Maximum hot spot temperature for 'E' class insulating material is
 (a) 120° C (b) 105° C (c) 130° C (d) 125° C
- 20.21 Maximum hot spot temperature for 'B' class insulating material is
 (a) 140° C (b) 155° C (c) 130° C (d) 150° C
- 20.22 Maximum hot spot temperature for 'F' class insulating material is
 (a) 140° C (b) 155° C (c) 130° C (d) 150° C
- 20.23 Maximum hot spot temperature for 'H' class insulating material is
 (a) 160° C (b) 175° C (c) 180° C (d) above 180° C
- 20.24 Maximum hot spot temperature for 'C' class insulating material is
 (a) 160° C (b) 175° C (c) 180° C (d) Above 180° C
- 20.25 As per classification of insulating material according to temperature, porcelain & ceramics comes in which class ?
 (a) 'H' class (b) 'C' class (c) 'E' class (d) 'F' class

- 20.26 As per classification of insulating material according to temperature, epoxy glass fiber resin comes in which class ?
 (a) 'H' class (b) 'C' class (c) 'E' class (d) 'F' class
- 20.27 As per classification of insulating material according to temperature, PVC in which class ?
 (a) 'Y' class (b) 'A' class (c) 'E' class (d) 'F' class
- 20.28 What do you understand by the low voltage ?
 (a) Upto 110 volt (b) Upto 150 volt (c) Upto 200 volt (d) Upto 250 volt
- 20.29 What do you understand by the medium voltage ?
 (a) Above 250 volt to 440 volt (b) Above 250 volt to 650 volt
 (c) Above 250 volt to 750 volt (d) Above 250 volt to 900 volt
- 20.30 What do you understand by the high voltage ?
 (a) Above 650 volt to 2.2 kV (b) Above 650 volt to 11 kV
 (c) Above 650 volt to 22 kV (d) Above 650 volt to 33 kV
- 20.31 What do you understand by the extra high voltage (EHV) ?
 (a) Above 132 kV (b) Above 66 kV (c) Above 110 kV (d) Above 33 kV
- 20.32 What is the maximum variation permitted in the frequency
 (a) 1 % (b) 3 % (c) 5 % (d) 10 %
- 20.33 What is the kV grade of the insulators which are used in 25 kV AC OHE
 (a) 25 kV grade (b) 42 kV grade (c) 52 kV grade (d) 33 kV grade
- 20.34 There are four type pollution zone based on preventive measures to reduce the incidence of insulator flashover. In non polluted zone 'A', the periodicity of cleaning of insulator should be
 (a) Cleaning not require (b) Along with AOH
 (c) Twice a year, once with AOH (d) Thrice in a year
- 20.35 There are four type pollution zone based on preventive measures to reduce the incidence of insulator flashover. In light polluted zone 'B', the periodicity of cleaning of insulator should be
 (a) Cleaning not require (b) Along with AOH
 (c) Twice a year (along with AOH & before monsoon) (d) Thrice in a year
- 20.36 There are four type pollution zone based on preventive measures to reduce the incidence of insulator flashover. In medium polluted zone 'C', the periodicity of cleaning of insulator should be
 (a) Cleaning not require (b) 3-4 times in a year
 (c) Thrice a year (along with AOH & before monsoon) (d) Once in a year
- 20.37 There are four type pollution zone based on preventive measures to reduce the incidence of insulator flashover. In heavy polluted zone 'D', the periodicity of cleaning of insulator should be
 (a) Cleaning not require (b) More than 4 times in a year
 (c) 3-4 times in a year (d) Thrice in a year

- 20.38 Which preventive measure should be taken to reduce the insulator flash over in heavy polluted zone 'D'?
- Cleaning of the insulator should be more than 4 times in a year
 - Used long creep age path insulator
 - Silicon grease on insulator
 - All of the above
- 20.39 Choose the correct sequence for method of application of silicon grease on insulator which given below
- Using a dry dongari cloth to clean insulator
 - Clean muslin cloth or soft nylon brush dipped in silicon grease
 - The surface of the insulator should be cleaned with dongri cloth soaked in kerosene oil & clean muslin cloth
 - Grease is uniformly applied on the entire ceramic surface of the insulator to a thickness of 1.5 mm to 2 mm.
- 3-1-2-4
 - 1-3-2-4
 - 1-3-4-2
 - 1-3-4-2
- 20.40 Di-electric strength of silicon grease is
- 5 kV/mm
 - 9 kV/mm
 - 12 kV/mm
 - 33 kV/mm
- 20.41 How much tensile load (70%) should be given for one minutes for testing of 9-ton insulator before installation
- 9000 kgf
 - 5940 kgf
 - 3240 kgf
 - 6930 kgf
- 20.42 How much tensile load (70%) should be given for one minutes for testing of stay tube or bracket tube insulator before installation
- 5220 kgf
 - 4900 kgf
 - 3240 kgf
 - 3580 kgf
- 20.43 Which type insulator should be destroyed after testing of insulator
- Break
 - Sign of permanent deformation
 - Crack or loosening of metal pin
 - All of the above

CHAPTER 21**Over Dimension Consignment (ODC)**

- 21.1 A consignment has length, width & height such that one or more of these parameters infringes standard moving dimensions at any point from start to destination , then the consignment is called
 (a) Over design consignment (b) Over dimension consignment
 (c) Out dimension consignment (d) Over dimension coach
- 21.2 For broad gauge, standard moving dimension for length is
 (a) 13716 mm (b) 13726 mm (c) 13736 mm (d) 13763 mm
- 21.3 For broad gauge, standard moving dimension for height at centre is
 (a) 2134 mm (b) 2193 mm (c) 2743 mm (d) 2134 mm
- 21.4 For broad gauge, standard moving dimension for height at corner is
 (a) 2134 mm (b) 2193 mm (c) 2743 mm (d) 2134 mm
- 21.5 For broad gauge, standard moving dimension for width is
 (a) 2834 mm (b) 2997 mm (c) 2797 mm (d) 2754 mm
- 21.6 For broad gauge, standard moving dimension for top width is
 (a) 570 mm (b) 1676 mm (c) 743 mm (d) 610 mm
- 21.7 For meter gauge, standard moving dimension for length is
 (a) 13143 mm (b) 13000 mm (c) 13720 mm (d) 12192 mm
- 21.8 For meter gauge, standard moving dimension for height at centre is
 (a) 2540 mm (b) 2997 mm (c) 2743 mm (d) 2134 mm
- 21.9 For meter gauge, standard moving dimension for height at corner is
 (a) 2540 mm (b) 2997 mm (c) 2743 mm (d) 2134 mm
- 21.10 For meter gauge, standard moving dimension for width is
 (a) 2540 mm (b) 2997 mm (c) 2743 mm (d) 2134 mm
- 21.11 For meter gauge, standard moving dimension for top width is
 (a) 570 mm (b) 590 mm (c) 610 mm (d) 645 mm
- 21.12 Which type of ODC is permitted in electrified section ?
 (a) 'A' class ODC (b) 'B' class ODC (c) 'C' class ODC (d) All of the above
- 21.13 If the gross clearance between ODC & fixed structure is 228.6 and above, than ODC is called
 (a) 'A' class ODC (b) 'B' class ODC (c) 'C' class ODC (d) All of the above

- 21.14 If the gross clearance between ODC & fixed structure is in between 228.6 mm to 152.4 mm, than ODC is called
 (a) 'A' class ODC (b) 'B' class ODC (c) 'C' class ODC (d) All of the above
- 21.15 If the gross clearance between ODC & fixed structure is in between 152.4 mm to 76.2 mm, than ODC is called
 (a) 'A' class ODC (b) 'B' class ODC (c) 'C' class ODC (d) All of the above
- 21.16 In 25 kV AC traction, if clearance between ODC & contact wire is more than 390 mm than ODC permitted with
 (a) No speed restriction & with power block
 (b) No speed restriction & with out power block
 (c) 15 kmph speed & with out power block
 (d) None of the above
- 21.17 In 25 kV AC traction, if clearance between ODC & contact wire is less than 390 mm but more 340 mm, than ODC permitted with
 (a) No speed restriction & with power block
 (b) No speed restriction & with out power block
 (c) 15 kmph speed & with out power block
 (d) none of the above
- 21.18 In 25 kV AC traction, if clearance between ODC & contact wire is less than 340 mm but more 100 mm ,than ODC permitted with
 (a) No speed restriction & with power block
 (b) No speed restriction & with out power block
 (c) 15 kmph speed & with power block
 (d) ODC not permitted
- 21.19 In 25 kV AC traction, if clearance between ODC & contact wire is less than 100 mm, than ODC permitted
 (a) No speed restriction & with power block
 (b) No speed restriction & with out power block
 (c) 15 kmph speed & with power block
 (d) ODC not permitted
- 21.20 ODC movement should be accompanied by OHE staff, when clearance between ODC & contact wire is less than
 (a) 390 mm (b) 340 mm (c) 320 mm (d) 270 mm
- 21.21 The permissible maximum height of ODC
 (a) 4.62 m (b) 4.52 m (c) 4.72 m (d) 4.42 m

CHAPTER 22**AUTO TENSIONING DEVICE (ATD)**

- 22.1 What do mean by the “regulating ratio” of Auto Tensioning Device (ATD) ?
 (a) Counter weight : pulleys weight
 (b) Weight of OHE in one span length
 (c) Tension in OHE : counter weight
 (d) Tension in contact wire : counter weight
- 22.2 What will be the “regulating ratio” of winch type Auto Tensioning Device (ATD) ?
 (a) 1:1 (b) 2:1 (c) 3:1 (d) 5:1
- 22.3 What will be the “regulating ratio” of 2- pulley block system type ATD ?
 (a) 1:1 (b) 2:1 (c) 3:1 (d) 5:1
- 22.4 What will be the “regulating ratio” of 3 pulley block system type ATD ?
 (a) 1:1 (b) 2:1 (c) 3:1 (d) 5:1
- 22.5 ATD & its parameters is design for the standard temperature
 (a) 4⁰ C (b) 16⁰ C (c) 35⁰ C (d) 65⁰ C
- 22.6 In winch type ATD, the measurement ‘Y’ is the distance between
 (a) Rail level & bottom of the counter weight
 (b) Top of muff & bottom of the counter weight
 (c) Centre of fixed pulley & top of the counter weight
 (d) None of the above
- 22.7 In 2 or 3- pulley block ATD, the measurement ‘Y’ is the distance between
 (a) Rail level & bottom of the counter weight
 (b) Top of muff & bottom of the counter weight
 (c) Centre of fixed pulley & top of the counter weight
 (d) None of the above
- 22.8 In winch type ATD, the measurement ‘Z’ is the distance between
 (a) Drum centre to centre of movable pulley
 (b) Nearest face of the structure to drum centre
 (c) Nearest face of the structure to the centre of movable pulley
 (d) None of the above
- 22.9 In 3- pulley block system ATD, the measurement ‘X’ is the distance between
 (a) Centre of 1’s fixed pulley to centre of movable pulley
 (b) Nearest face of the structure to fixed pulley centre
 (c) Nearest face of the structure to centre of movable pulley
 (d) Centre of middle fixed pulley to movable pulley centre

- 22.10 In 2- pulley block system ATD, the measurement 'X' is the distance between
 (a) Centre of fixed pulley to centre of movable pulley
 (b) Nearest face of the structure to fixed pulley centre
 (c) Nearest face of the structure to centre of movable pulley
 (d) Centre of fixed pulley to Rail level
- 22.11 In winch type ATD, the counter weight is
 (a) 400 kg (b) 465 kg (c) 440 kg (d) 665 kg
- 22.12 In 2 -pulley block type ATD, the counter weight is
 (a) 400 kg (b) 465 kg (c) 440 kg (d) 665 kg
- 22.13 In 3- pulley block type ATD, the counter weight is
 (a) 400 kg (b) 465 kg (c) 440 kg (d) 665 kg
- 22.14 In 3- pulley block type ATD, the diameter of pulley.....old &new respectively
 (a) 150 mm & 250 mm (b) 160 mm & 200 mm
 (c) 170 mm & 250 mm (d) 150 mm & 240 mm
- 22.15 In 3- pulley block type ATD(new), the measurement 'X' at 35⁰ C is
 (a) 1250 mm (b) 1300 mm (c) 1150 mm (d) 1050 mm
- 22.16 In 3- pulley block type ATD(old), the measurement 'X' at 35⁰ C is
 (a) 1250 mm (b) 1300 mm (c) 1150 mm (d) 1050 mm
- 22.17 In 3-pulley block type ATD(new & old), the measurement 'Y' at 35⁰ C is
 (a) 2600 mm (b) 2500 mm (c) 2450 mm (d) 2300 mm
- 22.18 In winch type ATD, the measurement 'Z' at 35⁰ C is
 (a) 1250 mm (b) 1300 mm (c) 1150 mm (d) 1050 mm
- 22.19 In winch type ATD, the measurement 'Y' at 35⁰ C is
 (a) 2600 mm (b) 2500 mm (c) 2450 mm (d) 2300 mm
- 22.20 In tramway type regulated OHE, the tension is kept in contact wire
 (a) 2000 kg (b) 1500 kg (c) 1250 kg (d) 1000 kg
- 22.21 In tramway type OHE, the measurement 'Y' at 35⁰ C , for winch type ATD is
 (a) 2600 mm (b) 2500 mm (c) 2450 mm (d) 2300 mm
- 22.22 In tramway type OHE, the measurement 'Z' at 35⁰ C , for winch type ATD is
 (a) 1100 mm (b) 1200 mm (c) 1250 mm (d) 1300 mm
- 22.23 In tramway type OHE, the measurement 'X' at 35⁰ C , for 3- pulley block ATD is
 (a) 1100 mm (b) 1200 mm (c) 1250 mm (d) 1300 mm
- 22.24 In tramway type OHE, the measurement 'Y' at 35⁰ C , for 3- pulley block ATD is
 (a) 2300 mm (b) 2400 mm (c) 2500 mm (d) 2600 mm

- 22.25 Ambient temperature is always.....than the object temperature
 (a) less (b) same (c) higher (d) uncertain
- 22.26 Linear coefficient of copper i.e. α is
 (a) $17 \times 10^{-6} \text{ mm/m/}^{\circ}\text{C}$ (b) $1.7 \times 10^{-6} \text{ mm/m/}^{\circ}\text{C}$
 (c) $17 \times 10^{-6} \text{ m/m/}^{\circ}\text{C}$ (d) $23 \times 10^{-6} \text{ mm/m/}^{\circ}\text{C}$
- 22.27 In tramway type OHE , the counter weight for winch type or 2- pulley ATD is
 (a) 200 kg (b) 415 kg (c) 250 kg (d) 400 kg
- 22.28 In tramway type OHE , the counter weight for three pulley ATD is
 (a) 200 kg (b) 415 kg (c) 265 kg (d) 400 kg
- 22.29 In winch type ATD, If the variation in 'Z' values is 10 mm ,what will be the variation in 'Y' value
 (a) 10 mm (b) 50 mm (c) 30 mm (d) 40 mm
- 22.30 In 2- pulley type ATD, If the variation in 'X' values is 5 mm, what will be the variation in 'Y' value
 (a) 10 mm (b) 20 mm (c) 30 mm (d) 25 mm
- 22.31 In 3- pulley type ATD, If the variation in 'X' values is 10 mm ,what will be the variation in 'Y' value
 (a) 10 mm (b) 20 mm (c) 30 mm (d) 40 mm
- 22.32 If tension length is maximum 750 m, ATD is provided at one end and other end is fixed anchor. Where will be the anticreep point in this condition?
 (a) 350 m from the ATD (b) 375 m from the ATD
 (c) 300 m from the ATD (d) Anti-creep not required
- 22.33 Length of stain less steel rope in winch type ATD
 (a) 7.5 m (b) 9 m (c) 10.5 m (d) 12.75 m
- 22.34 Length of stain less steel rope in 3- pulley block type ATD
 (a) 7.5 m (b) 9 m (c) 10.5 m (d) 12.75 m
- 22.35 20 mm wide band is painted on anchoring structure of ATD to show the different values of 'Y' at different temperature, the distance between two bands depends upon the
 (a) Span length (b) Tension in OHE conductors
 (c) Sag in OHE conductors (d) Tension length
- 22.36 If stain less steel rope breakage, anti falling rod is provided in ATD to prevent
 (a) OHE falling down to earth
 (b) Counter weight falling down to earth
 (c) Both OHE & counter weight , falling down to earth
 (d) none of the above

- 22.37 If SS wire of ATD broken, OHE does not come on ground due to
 (a) 9-ton insulator (b) Fixed pulley
 (c) Movable pulley (d) Hex tie rod
- 22.38 In semi regulated OHE, i.e. one end of tension length is fixed anchor & other end of tension length is anchored on 3- pulley block type ATD, What will be the weight of counter weight ?
 (a) 665 kg (b) 333 kg (c) 400 kg (d) 1250 kg
- 22.39 In semi regulated OHE, i.e. one end of tension length is fixed anchor & other end of tension length is anchored on Winch type ATD, What will be the weight of counter weight ?
 (a) 665 kg (b) 200 kg (c) 400 kg (d) 1250 kg
- 22.40 If SS wire of ATD breaks, the sag in shorter tension length of OHE in Comparison of larger tension length will be
 (a) More (b) Less (c) Remains same (d) Can not say
- 22.41 Due to breakage of SS wire of ATD of cross over OHE, panto entanglement may takes place. To minimize the possibility of panto entanglement , action should be taken by providing/ adjusting
 (a) 'X' parameter should be increased
 (b) 'X' parameter should be decreased
 (c) 'Y' parameter should be increased
 (d) Inserting a pipe of suitable length in hex tie rod of ATD
- 22.42 To minimize the possibility of panto entanglement , inserting a pipe of suitable length in hex tie rod (ATD). Suitable length of pipe depends upon
 (a) Lowest temperature in the region
 (b) Highest temperature in the region
 (c) Both tension length & lowest temperature in the region
 (d) Both tension length & highest temperature in the region
- 22.43 Material of the pipe, which is inserted in the hex tie rod of cross over ATD
 (a) Aluminum (b) G.I. (c) MS (d) Brass
- 22.44 Diameter of the pipe, which is inserted in the hex tie rod of cross over ATD
 (a) 10 mm (b) 12 mm (c) 16 mm (d) 20 mm
- 22.45 The bearing should be replaced during
 (a) Each POH (b) Alternate POH (c) AOH (d) Alternate AOH
- 22.46 Lubricate the SS wire ropes at least once in a year with
 (a) Lithium base grease (b) Balmerol Ropelube 1000
 (c) Graphite grease (d) Lube Oil

- 22.47 Periodicity of end reversal of wire rope of 3- pulley type ATD should be done during
(a) AOH (b) Alternate AOH (c) POH (d) Alternate POH
- 22.48 How many places, ovality of wire rope should be checked at 300 mm near pulley apart by measuring rope diameter at right angle
(a) One (b) Two (c) Three (d) Four
- 22.49 SS wire rope should be replaced with new lubricated wire rope, if ovality is found
(a) Less than 0.51 (b) Less than 0.41
(c) More than 0.51 (d) None of the above
- 22.50 Check the condition of SS wire rope through magnifying glass for
(a) Loose wire/strands and bird caging (b) Broken wire/strands
(c) Rusting, pitting/corrosion (d) All of the above

CHAPTER 23

OHE MAINTENANCE

- 23.1 Current collection test is carried out in OHE to find out
- Current carrying capacity of catenary wire
 - Current carrying capacity of contact wire
 - Current carrying capacity of different jumpers
 - Location of sparking during movement of pantograph
- 23.2 Current collection test is carried out during
- Before monsoon
 - During monsoon
 - After monsoon
 - Night only
- 23.3 Places, where sparking takes place during current collection test .What may be the reason of sparking ?
- OHE is not proper
 - Track is not proper
 - Rolling stock is not proper
 - All of the above or either (a) or(b) or (c)
- 23.4 Places, where sparking takes place during current collection test .What may be the reason of sparking on account of OHE ?
- Kink in OHE
 - Improper gradient of contact wire
 - Improper tension in OHE conductors
 - All of the above
- 23.5 How current collection test is carried out with live OHE ?
- A mirror is fixed in rear cab of a loco & get reflection of the panto & OHE from cab
 - 8- wheeler tower wagon with equipped such facilities
 - Recording car
 - All of the above
- 23.6 The current collection test is carried out by the depot in-charge over his entire section within
- One month
 - Three months
 - Six months
 - One year
- 23.6 The current collection test is carried out by the AEE/TRD over his entire section within
- One month
 - Three months
 - Six months
 - One year
- 23.7 Object of the AOH is
- At random checking
 - Parts should be as new as first installed
 - To rectify the defects ,which are developed during one year service
 - All of the above
- 23.8 Object of the POH is
- Permanent overhauling
 - Maintenance free
 - To rectify the deficiencies ,which is developed during service
 - To become fittings as new one as first time introduced

- 23.9 From any live part of the OHE, tree branches should not be nearer than
 (a) 0.5 m (b) 1 m (c) 2 m (d) 4 m
- 23.10 During yearly maintenance of OHE, how much variation is not permitted in setting distance with the original figure
 (a) Above 30 mm (b) Above 35mm
 (c) Above 40mm (d) Above 45mm
- 23.11 During yearly maintenance of OHE, how much variation is not permitted in rail level with the original figure
 (a) Above 5 mm (b) Above 15 mm
 (c) Above 10 mm (d) Above 20 mm
- 23.12 In one tension length of OHE, maximum splices can be provided ?
 (a) 20 (b) 15 (c) 10 (d) 5
- 23.13 The distance between adjacent splices should not more than
 (a) 300 m (b) 200 m (c) 100 m (d) 250 m
- 23.14 To check free movement of ATD, what weight is required for pulling counter weight
 (a) 10 kgf (b) 5 kgf (c) 20 kgf (d) 25 kgf
- 23.15 Speed of tower wagon, when checking contact wire level & stagger
 (a) 20 km/h (b) 10 km/h (c) 15 km/h (d) 25 km/h
- 23.16 Foot patrolling is carried out by the technician of the section (Main Line) and yard once in
 (a) 12 days (b) 20 days (c) 15 days (d) 10 days
- 23.17 Foot patrolling is carried out by the technician of the suburban sections once in
 (a) One week (b) Two week (c) Three week (d) Four week
- 23.18 Foot patrolling is carried out by the JE/SE of the sections once in
 (a) Three month (b) Six month (c) Four month (d) Two month
- 23.19 PG clamps (8no.) from 'G' jumper location can be reused during POH ?
 (a) Check, clean & reused at same location
 (b) Reused at other location after checks, clean in workshop and OHE depot
 (c) Reused after one year after checks, clean in workshop and OHE depot
 (d) Can not be reused
- 23.20 Periodicity of contact wire ending clamp visual inspection is
 (a) one year (b) 2 years (c) 4.5 years (d) 8 years
- 23.21 Periodicity of contact wire ending clamp replacement by new one is
 (a) 4 years (b) 9 years in alternate POH (c) 4.5 years (d) 8 years
- 23.22 Periodicity of catenary wire ending clamp visual inspection is
 (a) one year (b) 2 years (c) 4.5 years (d) 8 years

- 23.23 Periodicity of catenary wire ending clamp replacement is
 (a) once in 4 years
 (b) 9 years in alternate POH & can not be reused
 (c) 4.5 years
 (d) 8 years & can be reused
- 23.24 Periodicity of contact wire splice replacement is
 (a) 4 years & reused (b) 4 years & can not be reused
 (c) 9 years & reused (d) 9 years & can not be reused
- 23.25 Periodicity of contact wire ending clamps replacement at section insulator is
 (a) 4 years & reused (b) 4 years & can not be reused
 (c) 9 years & reused (d) 9 years & can not be reused
- 23.26 As per electrical standard committee report on OHE maintenance report AOH i.e. IOH of single cantilever location in non heavy polluted zone shall be done once in :
 (a) 6 months (b) 12 months
 (c) 18 months (d) 24 months
- 23.27 During AOH of PG clamp, which point should be done
 (a) open out PG clamp & clear the groove and wire properly
 (b) check & clean oxide from surface
 (c) applying corrosion inhibiting compound
 (d) all of the above
- 23.28 POH of 9-ton insulator is done in every
 (a) 3 years (b) 4 years (c) 4.5 years (d) 5 years
- 23.29 All the 8 OHE PG clamps at the 'G' jumper should be replaced during once in ?
 (a) 6 months (b) one year (c) 2 years (d) 4.5 years
- 23.30 Periodicity of RRA clamp to be carried out
 (a) one year (b) 2 years (c) 4.5 years (d) 8 years

CHAPTER 24**MAINTENANCE BLOCKS & OHE BREAKDOWNS**

- 24.1 Traffic block is granted to the OHE supervisors for heavy maintenance work by
- Section controller in consultation with the TPC
 - TPC in consultation with the section controller
 - Section controller with the permission of TPC
 - TPC with the permission of section controller
- 24.2 Power block is granted to the OHE supervisors for heavy maintenance work by
- Section controller in consultation with the TPC
 - TPC in consultation with the section controller
 - Section controller with the permission of TPC
 - TPC with the permission of section controller
- 24.3 During traffic block, which type vehicles movement is blocked in traffic block section ?
- Electric hauled
 - Diesel hauled
 - Steam hauled
 - All of the above
- 24.4 During power block, which type vehicles movement is blocked in power block section ?
- Electric hauled
 - Diesel hauled
 - Steam hauled
 - All of the above
- 24.5 Which type of power block is required for daily routine maintenance work of OHE in main line ?
- Pre-arranged power block
 - Local power block
 - Emergency power block
 - All of the above
- 24.6 Which type of power block is required for daily routine maintenance work of OHE in secondary line ?
- Pre-arranged power block
 - Local power block
 - Emergency power block
 - All of the above
- 24.7 In locally arranged power block, supply of the siding or yard is shut down by
- TPC
 - Section controller
 - Yard master
 - OHE in charge, who required power block
- 24.8 Which case, TPC arranged emergency power block ?
- A damaged OHE or feeder falling down and or persons or animals or vehicle or falling trees coming in contact with or likely to come in contact with live equipment
 - A damaged electric loco & driver requires the permit to work
 - Derailment or any other accident on the electrified section
 - All of the above

- 24.9 In the private no. book, private no.'s are printed in the form of
 (a) Two digits, serially (b) Three digits, serially
 (c) Two digits, not serially (d) Three digits, not serially
- 24.10 Private no. book is an important documents and it should be carefully preserved for a period of
 (a) One year (b) Five years
 (c) Two years (d) Three years
- 24.11 The requisition for power block is sent to the TPC in the prescribed Performa is called
 (a) Performa 'A' (b) Performa 'B'
 (c) Performa 'C' (d) Performa 'D'
- 24.12 The permit to work (PTW) is issued by the TPC in the prescribed Performa called
 (a) Performa 'A' (b) Performa 'B'
 (c) Performa 'C' (d) Performa 'D'
- 24.13 The cancellation of the power block is sent to the TPC in the prescribed Performa is called
 (a) Performa 'A' (b) Performa 'B'
 (c) Performa 'C' (d) Performa 'D'
- 24.14 Before granting power block in the section, the longitudinal protection and lateral protection in the section is arranged by
 (a) TPC (b) Section controller
 (c) TNL (d) Station master
- 24.15 Which point should be considered by the person, who returned power block to the TPC
 (a) All men & materials have been withdrawn from the electrified equipment and its vicinity
 (b) All earthing should be removed
 (c) All working staff should be warned that the power supply is to be restored
 (d) All of the above
- 24.16 A section on which power block has been granted, the longitudinal protection as a protective measure is taken to stop the movement of electric loco running on the
 (a) Same track (b) Adjacent track
 (c) Diamond crossing (d) All of the above
- 24.17 A section on which power block has been granted, the lateral protection as a protective measure is taken to stop the movement of electric loco running on the
 (a) Same track (b) Adjacent track
 (c) Cross over track to the same track (d) All of the above
- 24.18 Which types of OHE breakdown are usually occur in OHE
 (a) Uprooting of or damage to OHE mast on account of cyclone derailment etc.
 (b) Entanglement of panto with the OHE ,snapping of OHE conductors on account of fault & stray wire etc.
 (c) Flash over or other damage to insulators
 (d) All of the above

- 24.19 If OHE breakdown or defect in OHE , which are likely to affect the train services noticed by any railway servant, will be reported immediately to
- (a) TPC
 - (b) Station master
 - (c) Section controller
 - (d) Either (a) or (b) or (c)
- 24.20 On receipt of the first report about the breakdown by the TPC , the first & prime step is taken by the TPC
- (a) Direct TRD official to proceed to the site
 - (b) Inform Sr. DEE /TRD & other officers and seek their direction
 - (c) Switch off power supply to the affected lines & inform the section controller
 - (d) Permitting movement of steam or diesel hauled train, if possible
- 24.21 The first supervisors or officers of the TRD, reaching the site of the breakdown should
- (a) Make a quick assessment of damage & the time required for restoration
 - (b) Arrange for preservation of evidence
 - (c) Arrange or ensure the safety rules to be observed as per GR & SR
 - (d) All of the above
- 24.22 The Sr. DEE/TRD should also proceed to the site in the event of major breakdown, when likely to result in interruption of traffic for more than
- (a) 12 hours
 - (b) 8 hours
 - (c) 5 hours
 - (d) 4 hours

CHAPTER 25**ELECTRICAL CROSSING OF THE RAILWAY TRACKS**

- 25.1 What do you mean by “Electrical Crossing of the Railway tracks” ?
(a) Underground electrical power line crossing across Rly. tracks
(b) Over head electrical power line crossing across Rly tracks
(c) Both (a) & (b)
(d) OHE crossing across LC gate
- 25.2 Electrical crossing of the railway tracks are classified on the basis of clearances viz. (1) category ‘A’ (2) category ‘B’ (3) category ‘C’ What do you mean by category ‘A’
(a) Crossing of the tracks electrified on 1500 volt DC system
(b) Crossing of the tracks electrified on 25 kV AC system or likely to electrified
(c) Crossing of the tracks not likely to be electrified in future
(d) All of the above
- 25.3 Electrical crossing of the railway tracks are classified on the basis of clearances viz. (1) category ‘A’ (2) category ‘B’ (3) category ‘C’. What do you mean by category ‘B’
(a) Crossing of the tracks electrified on 1500 volt DC system
(b) Crossing of the tracks electrified on 25 kV AC system or likely to electrified
(c) Crossing of the tracks not likely to be electrified in future
(d) All of the above
- 25.4 Electrical crossing of the railway tracks are classified on the basis of clearances viz. (1) category ‘A’ (2) category ‘B’ (3) category ‘C’. What do you mean by category ‘C’
(a) Crossing of the tracks electrified on 1500 V DC system
(b) Crossing of the tracks electrified on 25 kV AC system or likely to electrified
(c) Crossing of the tracks not likely to be electrified in future
(d) All of the above
- 25.5 All electrical crossing upto 650 volt for category ‘A’ & ‘B’ shall have to be by means of
(a) Underground cable (b) Overhead conductors
(c) Either ‘A’ or ‘B’ (d) None of the above
- 25.6 All electrical crossing between 650 volt & 11 kV for category ‘C’ shall have to be by means of
(a) Underground cable (b) Overhead conductors
(c) Either ‘A’ or ‘B’ (d) None of the above
- 25.7 Normally overhead crossing has to be allowed at 90° angle to the track, but in special cases , maximum deviation is allowed upto
(a) 15° (b) 30° (c) 45° (d) 60°

- 25.8 The distance between the centre line of the nearest track & supporting structure (i.e. crossing span) should not be less than in over line cases
- Height of the supporting structure
 - Height of the supporting structure + 6 meters
 - Height of the supporting structure + 5 meters
 - Height of the supporting structure + 10 meters
- 25.9 Cross span wires will not employ the wires, which breaking strength is less than
- 360 kg
 - 560 kg
 - 1000 kg
 - 2200 kg
- 25.10 How many joints is allowed in cross span wire of electrical crossing ?
- Three
 - Two
 - One
 - Nil
- 25.11 Guard wires consist of GI should not be less than
- 6 SWG
 - 10 SWG
 - 11 SWG
 - 17 SWG
- 25.12 As far as possible, crossing will be located at the mid span of OHE, but in no case, the horizontal distance of crossing from traction mast should not be less than
- 1 m
 - 2 m
 - 6 m
 - 10 m
- 25.13 The minimum clearance between crossing OHL conductors or guard wire & OHE traction conductors should not be less than
- 1 m
 - 2 m
 - 6 m
 - 10 m
- 25.14 In worst condition, The minimum clearance between crossing OHL conductors & guard wire should not be less than
- 1 m
 - 2 m
 - 6 m
 - 1.5 m
- 25.15 Suitable anti climbing devices and warning notices are to be provided on the supporting structures of crossing span, where the voltage of the OHL exceeds
- 220 volt
 - 440 volt
 - 650 volt
 - 11 KV
- 25.16 All supporting structures of crossing span have to be properly earthed & their earth resistance should not be more than
- 0.5 ohm
 - 2 ohm
 - 5 ohm
 - 10 ohm
- 25.17 What is the minimum clearance between highest traction conductor and lowest crossing conductor upto & including 11kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
- Under ground cable
 - 2 .0 m
 - 6.0 m
 - 10.0 m
- 25.18 What is the minimum clearance between highest traction conductor and lowest crossing conductor above 11 kV & upto 66 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
- Under ground cable
 - 2.44 m
 - 3.40 m
 - 3.05.0 m

- 25.19 What is the minimum clearance between highest traction conductor and lowest crossing conductor above 66 kV & upto 132 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a) Under ground cable (b) 2.44 m (c) 3.05 m (d) 4.58 m
- 25.20 What is the minimum clearance between highest traction conductor and lowest crossing conductor above 132 kV & upto 220 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a) Under ground cable (b) 2.44 m (c) 3.05 m (d) 4.58 m
- 25.21 What is the minimum clearance between highest traction conductor and lowest crossing conductor above 220 kV & upto 400 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a) 5.49 m (b) 6.54 m (c) 6.0 m (d) 10.0 m
- 25.22 What is the minimum clearance between highest traction conductor and lowest crossing conductor above 400 kV & upto 500 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a)) 6.54 m (b) 7.94 m (c) 7.65 m (d) 8.62 m
- 25.23 What is the minimum clearance between highest traction conductor and lowest crossing conductor above 500 kV & upto 800 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a) 7.65 m (b) 8.62 m (c) 7.94 m (d) 8.62 m
- 25.24 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions upto and including 650 volts as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a) 2500 mm (b) 2000 mm (c) 3000 mm (d) 1500 mm
- 25.25 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions above 650 volts and upto & including 33 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a) 2500 mm (b) 3700 mm (c) 3500 mm (d) 3200 mm
- 25.26 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions above 33 kV and upto & including 66 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a) 3500 mm (b) 3700 mm (c) 4000 mm (d) 4500 mm
- 25.27 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions above 66 kV and upto & including 132 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
 (a) 3500 mm (b) 3700 mm (c) 4000 mm (d) 4600 mm

- 25.28 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions above 132 kV and upto & including 165 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
(a) 4900 mm (b) 3700 mm (c) 4000 mm (d) 4600 mm
- 25.29 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions above 165 kV and upto & including 220 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
(a) 4900 mm (b) 5500 mm (c) 4000 mm (d) 4600 mm
- 25.30 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions above 220 kV and upto & including 400 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
(a) 4900 mm (b) 5500 mm (c) 7300 mm (d) 4600 mm
- 25.31 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions above 400 kV and upto & including 500 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
(a) 4900 mm (b) 5500 mm (c) 7300 mm (d) 8200 mm
- 25.32 What is the minimum clearance between any conductor not adequately insulated and any railway structure under most adverse conditions above 500 kV and upto & including 800 kV as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
(a) 10900 mm (b) 5500 mm (c) 7300 mm (d) 8200 mm
- 25.33 What is the minimum height above rail level for telegraph, telephone and other such low tension wire crossing a Railway as per Rly BD' LNo 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.
(a) 5500 mm (b) 6100 mm (c) 6000 mm (d) 7300 mm

CHAPTER 26**GENERAL AND SAFETY RULES FOR OHE**

- 26.1 When the tower wagon engine is 'ON' position, driver may left the tower wagon for a period
 (a) Only 5 minutes (b) Only 10 minutes
 (c) Only 15 minutes (d) Cannot leave the tower wagon
- 26.2 Choose the correct sequences of action which followed by TPC in case of section not holding 25 kV power supply
 (1) Isolate the healthy section on adjacent track on the same route length
 (2) Identify the faulty section and isolate it after that.
 (3) In case mid section driver is not in communication and section controller advised for switching on the OHE supply, TPC should on the OHE supply 5 minutes after the OHE tripping.
 (4) Energize healthy section on the advice of section controller
 (5) Advice section controller about isolation of faulty & healthy section
 (a) 2- 1- 5 – 4 - 3 (b) 1- 2- 3 – 4 - 5
 (c) 3 - 5- 4 – 1- 2 (d) 2- 1- 4 –5- 3
- 26.3 Competency certificate issued to the tower wagon driver by
 (a) SSE/OHE (b) AEE/TRD (c) DEE/TRD (d) Sr. DEE/TRD
- 26.4 Competency certificate issued to the tower wagon driver shall be valid from the date of the issue for a period of
 (a) one year (b) two year (c) three year (d) four year
- 26.5 The tower wagon shall work on the line in the block section or in the station yard under the direct supervision of a TRD official not the below the rank of
 the
 (a) AEE (b) SSE (c) SE (d) JE-II
- 26.6 When more than one tower wagons are working in the same block section, which instructions should be followed
 (a) T/W's should not move at speed more than 10 kmph & should be ready to stop.
 (b) Both T/W's, when entering or clearing the block section, both T/W's should maintain a minimum distance of 120 meters to each other.
 (c) After completion of the work the official in- charge of the T/W, who entered last in the section shall certify at the clearing station about clearance of the section by the last T/W.
 (d) All of the above.
- 26.7 Tower wagon in-charge will be responsible to ensure
 (a) T/W is fit condition & all tools, emergency store are available on the T/W
 (b) Conversant with the operation of the T/W and its various equipments
 (c) All safety precautions are taken during movement of T/W
 (d) All of the above

- 26.8 First aid box & printed board regarding electrical shock treatment are essential in the
 (a) OHE depots (b) T/W & wiring special train
 (c) Work shop (d) All of the above
- 26.9 Permit To Work (PTW) is essential for working on 25 kV AC OHE or near OHE within
 (a) 1 m (b) 2 m (c) 3 m (d) 4 m
- 26.10 Protection of cross over as per Station Working Rules (SWR), ensure
 (a) Longitudinal protection (b) Lateral protection
 (c) Longitudinal & Lateral protection both (d) none of the above
- 26.11 Which point is related to “Earthing before commencement of work” ?
 (a) At least two earthing & the distance between two earthing should not be more than 100 m.
 (b) Earthing cable should be renewed, if more than 20% strands are broken & the continuity of the cable between the top clamp and the bottom clamp should be checked fortnightly
 (c) The earthing cable should be flexible & able to withstand short circuit current
 (d) All of the above.
- 26.12 Which rules are applicable for ladder working in OHE ?
 (a) Ropes used with ladders should be of cotton or jute and held by one person on the ground & ropes should be used to pass tools and materials. No one should stand directly below a work spot under a ladder
 (b) More than one person shall not normally allowed on a ladder & in emergency condition, more than two person should not be allowed on ladder
 (c) Ladder should never be allowed to fall or rest against contact wire and insulator
 (d) All of the above
- 26.13 In the vicinity of the 25 kV AC OHE, the heavy induction is developed on -----, which parallel to the 25 kV AC OHE.
 (a) Metallic roof of the platform (b) Fencing near the track
 (c) Any other conductor (d) All of the above.
- 26.14 In the vicinity of the 25 kV AC OHE, which type of induction is developed on metallic structures which parallel to the 25 kV AC OHE ?
 (a) Electro static type (b) Electro magnetic type
 (c) Both electro static type & electro magnetic type (d) None of the above
- 26.15 Which factors depends upon the amount of induced voltage ?
 (a) Amount of ac system voltage (b) Distance of metallic part from ac conductor
 (c) Length of parallelism of metallic part (d) All of the above
- 26.16 OHE/Bonding staff should avoid contact with the rail, when electrical hauled train is within
 (a) 50 m (b) 200 m (c) 250 m (d) 500 m
- 26.17 “Electrical Accident” in railways related to the
 (a) Caused directly or indirectly due to electrical causes
 (b) It includes any electrical shock or any electrical burn whether minor, major or fatal
 (c) Whether suffered by railway servant or others
 (d) All of the above.

- 26.18 Which elements are a causes of fire, when elements are in contact to each other ?
 (a) Inflammable substance & ignition temperature
 (b) Oxygen & ignition temperature
 (c) Inflammable substance & oxygen
 (d) All of the above.
- 26.19 Soda-acid type extinguisher is suitable to extinguish
 (a) Fire in solid inflammable substances (b) Fire in liquid inflammable substances
 (c) Fire in gas inflammable substances (d) All of the above.
- 26.20 Foam type extinguisher is suitable to extinguish
 (a) Electrical fire due to short ckt. (b) Petrol fire
 (c) Electrical fire due to over load (d) All of the above
- 26.21 Which extinguisher is suitable to extinguish electrical fire
 (a) Carbon di-oxide (b) Carbon tetra chloride
 (c) Dry chemical powder (d) All of the above
- 26.22 HRC fuses provide best protection against
 (a) Short circuit (b) Lightning (c) Sparking (d) Fire
- 26.23 The resistance of the dry skin of human body between the tip of the left hand finger and right hand finger is of the order of
 (a) 100 Ohms (b) 1000 Ohms (c) 10000 Ohms (d) 1000,000 Ohms
- 26.24 Death is almost certain, when the current through human body is
 (a) 10 m amps (b) 20 m amps (c) 40 m amps (d) 100 m amps
- 26.25 "First aid" for electric shock victim is
 (a) Bandage (b) Massage
 (c) Pouring water on body (d) Artificial respiration
- 26.26 Micrometer is used to measure the
 (a) Accuracy of the material (b) Thickness of the objects
 (c) Current density (d) All of the above
- 26.27 Which is not a part of micrometer ?
 (a) Main scale & circular scale (b) Thimble
 (c) Ratchet (d) Vernier scale
- 26.28 The objects, Which is to be measured by the micrometer, is tighten between
 (a) Stud & main scale (b) Stud & spindle
 (c) Spindle & ratchet (d) Spindle & circular scale

- 26.29 The least count (L.C.) of the micrometer is calculated by ----- Where,
 M_d = value of one division of main scale, C_d = no. of division of circular scale
 (a) $L.C. = M_d C_d / 100$ (b) $L.C. = 100M_d / C_d$
 (c) $L.C. = M_d / C_d$ (d) $L.C. = C_d / M_d$
- 26.30 When object is not to be measured & micrometer is fully in tight position, if zero of the circular scale is ahead of the zero of the main scale, i.e. this type of the error of the micrometer is called
 (a) Positive error (b) Negative error (c) No error (d) Both (a) & (b)
- 26.31 When object is not to be measured & micrometer is fully in tight position, if zero of the main scale is ahead of the zero of the circular scale, i.e. this type of the error of the micrometer is called
 (a) Positive error (b) Negative error (c) No error (d) Both (a) & (b)
- 26.32 If positive error is developed in micrometer, the reading taken by the micrometer will be -----
 ---than the actual reading.
 (a) More (b) Less (c) Same (d) Can not say
- 26.33 If negative error is developed in micrometer, the reading taken by the micrometer will be -----
 ----than the actual reading.
 (a) More (b) Less (c) Same (d) Can not say
- 26.34 Backless error may be developed in micrometer due to movement of the spindle in
 (a) Forward direction (b) Reverse direction
 (c) Forward & reverse direction at same time (d) Can not say
- 26.35 Tong tester is works like a
 (a) Voltmeter (b) Ammeter (c) Multimeter (d) Magger
- 26.36 Multimeter is used to measure
 (a) Voltage (b) Current (c) Resistance (d) All of the above
- 26.37 Magger is used to measure
 (a) Voltage (b) Current (c) Insulation resistance (d) All of the above
- 26.38 R.P.M. of the motor is measured by
 (a) Dynamometer (b) Magger (c) Tong tester (d) Tachometer
- 26.39 Tension in the conductors is measured by
 (a) Dynamometer (b) Union screw (c) Trifor super (d) All of the above
- 26.40 Tension in the conductors is taken by
 (a) Trifor super (b) Union screw (c) Either (a) or (b) (d) Dynamometer

ANSWERS

CHAPTER 1 : ABBREVIATIONS RELATED TO RAILWAYS



1.1 (b)	1.2 (a)	1.3 (d)	1.4 (d)	1.5 (a)	1.6 (b)
1.7 (b)	1.8 (a)	1.9 (c)	1.10 (d)	1.11 (d)	1.12 (a)
1.13 (b)	1.14 (a)	1.15 (b)	1.16 (b)	1.17 (c)	1.18 (a)
1.19 (b)	1.20 (a)	1.21 (d)	1.22 (d)	1.23 (a)	1.24 (c)
1.25 (a)	1.26 (d)	1.27 (c)	1.28 (c)	1.29 (c)	1.30 (a)
1.31 (a)	1.32 (b)	1.33 (b)	1.34 (a)	1.35 (c)	1.36 (c)
1.37 (a)	1.38 (b)	1.39 (b)	1.40 (d)	1.41 (a)	1.42 (b)
1.43 (c)	1.44 (b)	1.45 (d)	1.46 (b)		

CHAPTER 2 : 25 KV AC TRACTION SYSTEM



2.1 (a)	2.2 (c)	2.3 (a)	2.4 (a)	2.5 (c)	2.6 (d)
2.7 (c)	2.8 (b)	2.9 (d)	2.10 (c)	2.11 (a)	2.12 (b)
2.13 (d)	2.14 (a)	2.15 (d)	2.16 (c)	2.17 (a)	2.18 (b)
2.19 (a)	2.20 (c)	2.21 (a)	2.22 (d)	2.23 (c)	2.24 (d)
2.25 (b)	2.26 (c)	2.27 (b)	2.28 (d)	2.29 (b)	2.30 (c)
2.31 (b)	2.32 (a)	2.33 (b)	2.34 (d)		

CHAPTER 3 : SPAN LENGTH & TENSION LENGTH



3.1 (b)	3.2 (a)	3.3 (b)	3.4 (c)	3.5 (d)	3.6 (c)
3.7 (d)	3.8 (c)	3.9 (b)	3.10 (b)	3.11 (d)	3.12 (d)
3.13 (a)	3.14 (c)	3.15 (a)	3.16 (a)	3.17 (d)	3.18 (a)
3.19 (d)	3.20 (d)	3.21 (c)			

CHAPTER 4 : WIND PRESSURE ON CONVENTIONAL OHE



4.1 (c)	4.2 (d)	4.3 (a)	4.4 (a)	4.5 (c)	4.6 (c)
4.7 (d)	4.8 (c)	4.9 (b)	4.10 (c)	4.11 (d)	4.12 (c)
4.13 (a)	4.14 (c)	4.15 (b)	4.16 (c)	4.17 (c)	4.18 (a)

CHAPTER 5 : ENCUMBRANCE, GRADIENT OF THE CONTACT WIRE



5.1 (c)	5.2 (b)	5.3 (a)	5.4 (a)	5.5 (a)	5.6 (b)
5.7 (a)	5.8 (d)	5.9 (d)	5.10 (a)	5.11 (a)	5.12 (b)
5.13 (b)	5.14 (d)	5.15 (c)	5.16 (d)	5.17 (a)	

CHAPTER 6 : HEIGHT OF CONTACT WIRES, LEVEL CROSSING GATE

6.1 (a)	6.2 (b)	6.3 (c)	6.4 (d)	6.5 (a)	6.6 (d)
6.7 (c)	6.8 (b)	6.9 (c)	6.10 (a)	6.11 (b)	6.12 (a)
6.13 (b)	6.14 (a)	6.15 (b)	6.16 (b)	6.17 (a)	6.18 (b)
6.19 (b)	6.20 (a)				

CHAPTER 7 : DROPPERS & OTHER OHE CONDUCTORS

7.1 (d)	7.2 (a)	7.3 (b)	7.4 (d)	7.5 (a)	7.6 (a)
7.7 (c)	7.8 (b)	7.9 (a)	7.10 (c)	7.11 (d)	7.12 (a)
7.13 (a)	7.14 (c)	7.15 (b)	7.16 (a)	7.17 (a)	7.18 (c)
7.19 (c)	7.20 (d)	7.21 (c)	7.22 (b)	7.23 (a)	7.24 (b)
7.25 (d)	7.26 (c)	7.27 (c)	7.28 (c)	7.29 (a)	7.30 (b)
7.31 (c)	7.32 (c)	7.33 (c)	7.34 (d)	7.35 (a)	7.36 (b)
7.37 (c)	7.38 (c)	7.39 (a)	7.40 (a)	7.41 (b)	7.42 (b)
7.43 (a)	7.44 (a)	7.45 (b)	7.46 (d)	7.47 (d)	7.48 (c)
7.49 (a)	7.50 (a)	7.51 (a)	7.52 (c)		

CHAPTER 8 : STAGGER

8.1 (b)	8.2 (b)	8.3 (d)	8.4 (d)	8.5 (d)	8.6 (d)
8.7 (a)	8.8 (d)	8.9 (b)	8.10 (b)	8.11 (d)	8.12 (d)
8.13 (b)	8.14 (d)	8.15 (a)	8.16 (d)	8.17 (c)	8.18 (a)
8.19 (a)	8.20 (d)	8.21 (b)	8.22 (a)	8.23 (c)	8.24 (c)
8.25 (c)	8.26 (d)	8.27 (a)	8.28 (c)		

CHAPTER 9 : REGULATED/UNREGULATED OHE

9.1 (a)	9.2 (a)	9.3 (c)	9.4 (c)	9.5 (c)	9.6 (c)
9.7 (a)	9.8 (d)	9.9 (a)	9.10 (b)	9.11 (b)	9.12 (a)
9.13 (a)	9.14 (c)	9.15 (b)	9.16 (c)		

CHAPTER 10 : DIFFERENT OHE SYSTEMS, PRE SAG AND ELASTICITY OF OHE

10.1 (d)	10.2 (d)	10.3 (d)	10.4 (c)	10.5 (c)	10.6 (d)
10.7 (a)	10.8 (d)	10.9 (b)	10.10 (c)	10.11 (c)	10.12 (d)
10.13 (a)	10.14 (a)	10.15 (d)	10.16 (d)	10.17 (d)	10.18 (a)
10.19 (b)	10.20 (d)	10.21 (a)	10.22 (d)	10.23 (d)	10.24 (a)
10.25 (b)	10.26 (a)	10.27 (b)	10.28 (d)	10.29 (b)	10.30 (b)
10.31 (b)	10.32 (d)	10.33 (d)			



CHAPTER 11 : OVERLAP, NEUTRAL SECTION

11.1 (c)	11.2 (a)	11.3 (a)	11.4 (d)	11.5 (b)	11.6 (c)
11.7 (d)	11.8 (d)	11.9 (c)	11.10 (a)	11.11 (d)	11.12 (c)
11.13 (c)	11.14 (b)	11.15 (c)	11.16 (d)	11.17 (d)	11.18 (b)
11.19 (a)	11.20 (d)	11.21 (a)	11.22 (a)	11.23 (b)	11.24 (a)
11.25 (d)	11.26 (d)	11.27 (c)	11.28 (a)	11.29 (d)	11.30 (d)
11.31 (a)	11.32 (c)	11.33 (d)	11.34 (c)	11.35 (d)	11.36 (a)
11.37 (b)	11.38 (b)	11.39 (a)			

CHAPTER 12 : TURN OUTS & CROSSOVERS

12.1 (d)	12.2 (a)	12.3 (b)	12.4 (b)	12.5 (a)	12.6 (a)
12.7 (c)	12.8 (c)	12.9 (c)	12.10 (d)	12.11 (b)	12.12 (c)
12.13 (a)	12.14 (b)	12.15 (d)	12.16 (d)	12.17 (d)	12.18 (d)
12.19 (d)	12.20 (d)	12.21 (b)			

CHAPTER 13 : SECTION INSULATOR, 25 KV AC JUMPERS

13.1 (b)	13.2 (c)	13.3 (a)	13.4 (b)	13.5 (a)	13.6 (d)
13.7 (a)	13.8 (a)	13.9 (c)	13.10 (d)	13.11 (a)	13.12 (b)
13.13 (b)	13.14 (d)	13.15 (a)	13.16 (b)	13.17 (d)	13.18 (b)
13.19 (a)	13.20 (b)	13.21 (d)	13.22 (c)	13.23 (c)	13.24 (c)
13.25 (a)	13.26 (a)	13.27 (a)	13.28 (d)	13.29 (d)	13.30 (c)
13.31 (b)	13.32 (a)	13.33 (a)	13.34 (b)	13.35 (c)	13.36 (b)
13.37 (a)	13.38 (b)				

CHAPTER 14 : BRACKET ASSEMBLY

14.1 (a)	14.2 (d)	14.3 (d)	14.4 (d)	14.5 (d)	14.6 (c)
14.7 (a)	14.8 (b)	14.9 (d)	14.10 (b)	14.11 (a)	14.12 (a)
14.13 (a)	14.14 (a)	14.15 (a)	14.16 (a)	14.17 (c)	14.18 (c)
14.19 (a)	14.20 (d)	14.21 (b)	14.22 (b)	14.23 (a)	14.24 (b)
14.25 (a)	14.26 (d)	14.27 (b)			

CHAPTER 15 : ELECTRICAL CLEARANCES AND LIGHTNING ARRESTOR

15.1 (b)	15.2 (b)	15.3 (b)	15.4 (c)	15.5 (c)	15.6 (b)
15.7 (a)	15.8 (a)	15.9 (c)	15.10 (b)	15.11 (b)	15.12 (d)

CHAPTER 16 : BONDING & EARTHING

16.1 (c)	16.2 (d)	16.3 (d)	16.4 (b)	16.5 (b)	16.6 (c)
16.7 (d)	16.8 (b)	16.9 (b)	16.10 (d)	16.11 (b)	16.12 (a)
16.13 (d)	16.14 (c)	16.15 (d)	16.16 (b)	16.17 (d)	16.18 (b)
16.19 (d)	16.20 (d)	16.21 (a)	16.22 (d)		

CHAPTER 17 : MAST, FABRICATED MAST AND PORTALS

17.1 (c)	17.2 (d)	17.3 (d)	17.4 (c)	17.5 (d)	17.6 (d)
17.7 (d)	17.8 (d)	17.9 (a)	17.10 (b)	17.11 (c)	17.12 (c)
17.13 (d)	17.14 (b)	17.15 (a)	17.16 (c)	17.17 (a)	17.18 (b)
17.19 (b)	17.20 (b)	17.21 (c)	17.22 (b)	17.23 (c)	17.24 (c)
17.25 (a)	17.26 (a)	17.27 (d)	17.28 (a)	17.29 (d)	17.30 (a)
17.31 (a)	17.32 (d)	17.33 (c)	17.34 (a)	17.35 (c)	17.36 (d)
17.37 (a)	17.38 (b)	17.39 (b)	17.40 (c)	17.41 (d)	17.42 (d)
17.43 (a)	17.44 (b)	17.45 (d)	17.46 (b)	17.47 (b)	17.48 (d)
17.49 (a)	17.50 (d)				

CHAPTER 18 : FOUNDATIONS

18.1 (c)	18.2 (c)	18.3 (b)	18.4 (d)	18.5 (a)	18.6 (a)
18.7 (c)	18.8 (a)	18.9 (d)	18.10 (a)	18.11 (b)	18.12 (a)
18.13 (d)	18.14 (a)	18.15 (a)	18.16 (b)	18.17 (a)	18.18 (b)
18.19 (d)	18.20 (d)	18.21 (d)	18.22 (d)	18.23 (b)	18.24 (c)
18.25 (a)	18.26 (c)	18.27 (c)			

CHAPTER 19 : IMPLANTATION

19.1 (c)	19.2 (b)	19.3 (c)	19.4 (a)	19.5 (d)	19.6 (a)
19.7 (a)	19.8 (d)	19.9 (c)	19.10 (a)	19.11 (b)	19.12 (a)
19.13 (b)	19.14 (b)	19.15 (c)	19.16 (a)		

CHAPTER 20 : OHE INSULATORS & CLASSIFICATION OF INSULATIONS AND VOLTAGES

20.1 (a)	20.2 (a)	20.3 (b)	20.4 (b)	20.5 (a)	20.6 (b)
20.7 (d)	20.8 (b)	20.9 (c)	20.10 (a)	20.11 (c)	20.12 (c)
20.13 (b)	20.14 (a)	20.15 (d)	20.16 (c)	20.17 (a)	20.18 (c)
20.19 (b)	20.20 (a)	20.21 (c)	20.22 (b)	20.23 (c)	20.24 (d)
20.25 (b)	20.26 (d)	20.27 (a)	20.28 (d)	20.29 (b)	20.30 (d)
20.31 (d)	20.32 (b)	20.33 (c)	20.34 (b)	20.35 (c)	20.36 (c)
20.37 (b)	20.38 (d)	20.39 (a)	20.40 (b)	20.41 (d)	20.42 (b)
20.43 (d)					

CHAPTER 21 : OVER DIMENSION CONSIGNMENT (ODC)

21.1 (b)	21.2 (a)	21.3 (c)	21.4 (a)	21.5 (b)	21.6 (d)
21.7 (d)	21.8 (a)	21.9 (d)	21.10 (a)	21.11 (c)	21.12 (d)
21.13 (a)	21.14 (b)	21.15 (c)	21.16 (b)	21.17 (c)	21.18 (c)
21.19 (d)	21.20 (a)	21.20 (d)			

CHAPTER 22 : AUTO TENSIONING DEVICE

22.1 (c)	22.2 (d)	22.3 (d)	22.4 (c)	22.5 (c)	22.6 (b)
22.7 (b)	22.8 (a)	22.9 (d)	22.10 (a)	22.11 (a)	22.12 (a)
22.13 (d)	22.14 (c)	22.15 (b)	22.16 (d)	22.17 (d)	22.18 (a)
22.19 (b)	22.20 (c)	22.21 (b)	22.22 (c)	22.23 (d)	22.24 (c)
22.25 (a)	22.26 (c)	22.27 (c)	22.28 (b)	22.29 (b)	22.30 (d)
22.31 (c)	22.32 (d)	22.33 (c)	22.34 (a)	22.35 (d)	22.36 (a)
22.37 (d)	22.38 (a)	22.39 (c)	22.40 (a)	22.41 (d)	22.42 (c)
22.43 (b)	22.44 (d)	22.45 (a)	22.46 (b)	22.47 (d)	22.48 (c)
22.49 (c)	22.50 (d)				

CHAPTER 23 : OHE MAINTENANCE

23.1 (d)	23.2 (d)	23.3 (d)	23.4 (d)	23.5 (d)	23.6 (b)
23.7 (c)	23.8 (c)	23.9 (d)	23.10 (d)	23.11 (a)	23.12 (d)
23.13 (b)	23.14 (c)	23.15 (a)	23.16 (b)	23.17 (c)	23.18 (a)
23.19 (b)	23.20 (b)	23.21 (c)	23.22 (b)	23.23 (c)	23.24 (b)
23.25 (d)	23.26 (d)	23.27 (c)	23.28 (d)	23.29 (c)	23.30 (d)
23.31 (a)					

CHAPTER 24 : MAINTENANCE BLOCKS & OHE BREAKDOWNS

24.1 (a)	24.2 (d)	24.3 (d)	24.4 (a)	24.5 (a)	24.6 (b)
24.7 (d)	24.8 (d)	24.9 (c)	24.10 (a)	24.11 (a)	24.12 (b)
24.13 (c)	24.14 (d)	24.15 (d)	24.16 (a)	24.17 (c)	24.18 (d)
24.19 (d)	24.20 (c)	24.21 (d)	24.22 (a)		

CHAPTER 25 : ELECTRICAL CROSSING OF THE RAILWAY TRACK

25.1 (c)	25.2 (a)	25.3 (b)	25.4 (c)	25.5 (a)	25.6 (c)
25.7 (b)	25.8 (b)	25.9 (b)	25.10 (d)	25.11 (a)	25.12 (c)
25.13 (b)	25.14 (d)	25.15 (c)	25.16 (d)	25.17 (a)	25.18 (b)
25.19 (c)	25.20 (d)	25.21 (a)	25.22 (b)	25.23 (c)	25.24 (a)
25.25 (b)	25.26 (c)	25.27 (d)	25.28 (a)	25.29 (b)	25.30 (c)
25.31 (d)	25.32 (a)	25.33 (b)			

CHAPTER 26 : GENERAL, SAFETY RULES FOR OHE AND MEASURING TOOLS

26.1 (d)	26.2 (a)	26.3 (d)	26.4 (c)	26.5 (d)	26.6 (d)
26.7 (d)	26.8 (d)	26.9 (b)	26.10 (c)	26.11 (d)	26.12 (d)
26.13 (d)	26.14 (c)	26.15 (d)	26.16 (c)	26.17 (d)	26.18 (d)
26.19 (a)	26.20 (b)	26.21 (d)	26.22 (a)	26.23 (d)	26.24 (d)
26.25 (d)	26.26 (b)	26.27 (d)	26.28 (b)	26.29 (c)	26.30 (a)
26.31 (b)	26.32 (a)	26.33 (b)	26.34 (c)	26.35 (b)	26.36 (d)
26.37 (c)	26.38 (d)	26.39 (a)	26.40 (c)		

REFERENCES

1. Manual of AC traction Maintenance and Operation, Volume II, Part I.
2. Manual of AC traction Maintenance and Operation, Volume II, Part II.
3. Principles of Design of 25kV AC Overhead Equipment by P.S.S.Rao.
4. Modern Electrical Traction by H.Pratap.
5. SMI no.TI/MI/0034/Rev.0 of contact wire in OOR OHE dated 01.06.1999 issued by RDSO.
6. SMI no.TI/MI/0037/Rev.2 of contact wire and associated fittings dated 21.10.2002 issued by RDSO.
7. SMI no.TI/MI/0029/Rev.3 of three pulley ATD dated 01.04.2006 issued by RDSO.
8. SMI no.TI/MI/0035/Rev.1 of Provision of pipe on Hexa tie rod ATD dated 28.09.2001 issued by RDSO.
9. SMI no.TI/MI/0018/Rev.3 of Winch type ATD dated 01.04.2006 issued by RDSO.
10. RDSO latter no. TI/OHE/GA/2013 dated 14 May 2013
11. OHE & PSI Maintenance book CETI/ CR/Thakurli
12. Rly Board latter number 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No. 7 to the Indian Railway SOD (BG) 2004.

OUR OBJECTIVE

To upgrade maintenance technologies and methodologies and achieve improvement in productivity, performance of all Railway assets and manpower which inter-alia would cover reliability, availability, utilisation and efficiency.

If you have any suggestions and any specific Comments please write to us.

Contact person : Director (Elect.)

Postal Address : Indian Railways
Centre for Advanced
Maintenance technology,
Maharajpur, Gwalior.
Pin code – 474 005

Phone : 0751 – 2470740
0751 – 2470803

Fax : 0751 – 2470841

Email : direlcamtech@gmail.com

EXIT

OHE BITS

1)	Pantograph width	1800 mm
2)	Height of contact wire above Rail Level for Regulated OHE	5.6 m
3)	Height of contact wire above Rail Level for Unregulated OHE	5.75 m
4)	Standard clearance between 25 KV live and earthed part	500 mm
5)	Minimum height of contact wire at level crossings	5.5 m
6)	Minimum height of contact wire at over line structure	5.42m
7)	Height of contact wire of Turn out OHE above Main line	5cm
8)	Diameter of the contact wire	12.24 mm
9)	Diameter of the catenary wire	10.54 mm
10)	One meter contact wire weight	0.952 kg
11)	One meter catenary wire weight	0.602 kg
12)	Cross section area of the contact wire	107 sq.mm
13)	Cross section area of the catenary wire	65 sq.mm
14)	No. of Droppers	(span/9)+1
15)	Dropper spacing Normal	9 m
16)	Mast to either side of the first Dropper spacing	2.25 m
17)	Dropper spacing first dropper to 2nd dropper or last to last but one dropper	9m (if not divisible by 9) or 6.75m (if divisible by 9)
18)	Dropper diameter	5 mm
19)	Register arm Dropper diameter	7 mm
20)	Rigid Dropper diameter	12.24 mm
21)	In span dropper fixed length	105 mm
22)	Condemned diameter of contact wire on Main line	8.25 mm
23)	Condemned diameter of contact wire on Yards	8.00 mm
24)	Permissible gradient of contact wire on Main line	3mm/m
25)	Permissible gradient of contact wire in Yards	10mm/m
26)	Clearance Live wire to Earth normal	50cm
27)	Clearance RC wire to earth	15cm
28)	Clearance RC wire to OHE	40cms
29)	Clearance Feeder wire to Earth	2m
30)	Near FOB, OHE to earth clearance Minimum	25cm
31)	Danger zone clearance	2m
32)	OHE feeder wire clearance	2m
33)	In IOL clearance between two OHE's	50cm
34)	In UIOL clearance between two OHE's	20cm
35)	Long time clearance	25cm
36)	Short time clearance	20cm
37)	Isolator fixed contact to operating rod clearance	38cm
38)	Section insulator runner clearance	22.5cm
39)	Minimum clearance between top live OHE to	6m

	bottom power line crossing	
40)	Minimum steady clearance	25cm
41)	Maximum steady clearance	35cm
42)	Minimum clearance from bottom of OLS to OHE	25 cm
43)	RC mid earth rail piece length	2m
44)	TSS earth resistance	0.5ohms
45)	Earth resistance at Auxiliary transformer	10 ohms
46)	Earth resistance at Current transformer	10 ohms
47)	Earth resistance for Booster Transformer	2 ohms
48)	TSS transformer capacity	21.6 MVA
49)	OHE current carrying capacity	600A
50)	21.6 MVA transformer's current capacity	800A
51)	Diameter of Disc insulator	15cm
52)	Length of Stay insulator	52cm
53)	Length of bracket insulator	50cm
54)	Length of Pedestal insulator	42cm
55)	Length of Core insulator	50cm
56)	Length of rod insulator	42cm
57)	Creepage path of the bracket insulator length	1050mm
58)	Size of Stay tube	28.4 x 33.7mm
59)	Size of Bracket tube	30 x 38 mm (standard) 40 x 49 (large)
60)	Size of Register arm	28.4 x 33.7 mm
61)	Size of BFB steady arm	32 x 31 mm
62)	Diameter of Anti-creep	12.54 mm
63)	Diameter of large span wire	14.70 mm
64)	Diameter of G jumper	15.20 mm
65)	Diameter of C jumper	9.54 mm
66)	Diameter of RC wire (aluminum)	19.50mm
67)	Diameter of SS wire rope	8.50 mm
68)	Cross section of RC wire	147.10mm ²
69)	Cross section of Anti creep wire	93.3 mm ²
70)	Cross section of large space wire	125.6 mm ²
71)	Length of G jumper	3.8 m
72)	Cross section of C jumper, F jumper	50 mm ²
73)	Cross section of G jumper	105 mm ²
74)	Cross section cross feed jumper	150 mm ²
75)	No of strands in G jumper and gauge of each strand	133, 1.013mm
76)	No of strands in C jumper and gauge of each strand	19, 1.83 mm
77)	Length of C jumper and F jumper	1.6m
78)	No of strands in Catenary wire and gauge of each strand	19, 2.103 mm
79)	No of strands in Anti creep and gauge of each strand	19, 2.50 mm
80)	No of strands in Large span and gauge of each strand	37, 2.07 mm

81)	No of strands in RC wire and gauge of each strand	19, 3.98 mm
82)	No of strands in SS wire rope and gauge of each strand	238, 1mm
83)	Length of bridle wire	8.5m
84)	Length of SS wire rope of Winch type ATD	10.5 m
85)	Length of SS wire rope of 3 pulley type ATD	7.00m (new) 8.00 m(old)
86)	Length of masts (BFB, RSJ)	9.5m
87)	Implantation (CRITICAL) for main line	2.36m
88)	Implantation (CRITICAL) for yard line	2.21 m
89)	Implantation (tangent track)	2.80 m
90)	Implantation on platforms	4.75 m
91)	Implantation for portals	3m
92)	Implantation at turnout mast	3.00 m
93)	Height of height gauge bar at LC gate	4.67 m
94)	Size of split pin	20 x 2.5 mm (small) 40 x 3.5 mm (big)
95)	Span length (minimum)	18m
96)	Span length (Maximum)	72m
97)	Minimum height of contact wire from Rail Level	4.92 m
98)	Maximum height of contact wire from Rail Level	5.80 m
99)	Height of contact wire from Rail Level (Regulated OHE)	5.60m
100)	Height of contact wire from Rail Level (Un Regulated OHE)	5.75 m
101)	Height of contact wire from Rail Level near LC gate	5.50m
102)	Standard encumbrance	1400 mm
103)	Standard Span lengths	72m, 67.5m, 63 m, 58.5m ,54 m, 49.50 m, 45 m, 40.50m, 36m, 31.50m, 27m, 22.5m, 18m
104)	The difference between consecutive span lengths	18 m
105)	The minimum span length for Insulated Over Lap	54 m
106)	Length of sweeping zone	4 to 6 mts
107)	Weight of Section Insulator	45 Kg
108)	The minimum span length for Section Insulator	54 m
109)	Total weight of Counter weight for Winch type ATD	400 Kg
110)	Total weight if Counter weights for 3 - pulley type	665 Kg
111)	Ratio of Winch type ATD	5 : 1
112)	Ratio of 3 Pulley ATD	3 : 1
113)	Hard drawn part in the OHE	Contact wire
114)	Mechanical Advantage is the ratio of	Load to Effort
115)	Mechanical Advantage of Winch type ATD	5
116)	Mechanical Advantage of 3 – Pulley type ATD	3
117)	Average life of contact wire	25 years
118)	Type of cantilever assembly	Swiveling type
119)	Location of C – Jumper from support	2.5m

120)	Distance between two C jumpers	350 to 400m
121)	Location of G – Jumper	Un Insulated Over Lap, Turn Out, Cross Over
122)	Location of F - Jumper	Insulated Over Lap
123)	Normal stagger of catenary wire	0
124)	Stagger of contact wire on tangent tracks	±200 mm
125)	Stagger of contact wire on Curved tracks	±300 mm
126)	Stagger of catenary wire on Curved tracks	±100 mm
127)	Stagger at Section Insulator	0
128)	Minimum Steady clearance on main line	250 mm
129)	Minimum Steady clearance on loop lines	180 mm
130)	Location Adjustable Droppers	Section Insulators
131)	Another name for Register arm dropper	7 mm Dropper
132)	Current carrying capacity of Single pole Isolator	600 A
133)	Current carrying capacity of Double pole Isolator	800 A
134)	Tension length of Regulated OHE	1600 m
135)	Tension length of Un regulated OHE	2000 m
136)	Tension of Tram Way	1250 Kg
137)	Maximum Tension of Regulated OHE	2000 Kg (1000+1000)
138)	Maximum Tension of Un Regulated OHE	3000 Kg (1300+1700)
139)	Tension of Aluminum Catenary wire	800 Kg
140)	Tension of Aluminum contact wire	1200 Kg
141)	Tension of Cross feeder wire	400 Kg
142)	Runner length of Section Insulator	2.12 m
143)	Maximum allowed leaning of Mast	80 mm
144)	Allowed pre sag	100 mm
145)	Height of OOR OHE Contact wire	6.10 m
146)	Depth of K- series mast	300 mm
147)	Maximum permitted speed for Un regulated OHE	80 Kmph
148)	Maximum permitted speed for Regulated OHE	160 Kmph
149)	Maximum permitted speed for Tram Way	80 Kmph
150)	Soil bearing capacity for B – type Foundation	11,000 Kg/m ²
151)	Soil bearing capacity for BG – type Foundation	11,000 Kg/m ²
152)	Soil bearing capacity for MG/G – type Foundation	5,500 Kg/m ²
153)	Soil bearing capacity for RBC – type Foundation	16,500 Kg/m ²
154)	Soil bearing capacity for RWBC – type Foundation	8,250 Kg/m ²
155)	Maximum rated value of Discharge rod	6250 Amps/sec
156)	Periodicity of re tensioning of Un Regulated OHE	Yearly and seasonally
157)	Location of Z bond	With in the track circuit area at glued (Insulation) joints
158)	Location of Inter Track bond	LC gates and with in station limits
159)	The distance between two IR bonds	350 to 400 m
160)	Minimum Embedded length of mast	1/8 th of mast height (masts -1.35m, portals -1.45 m)

161)	Track separation range	150 mm – 700 mm
162)	The length of buried rail in a sub station	13 m
163)	Effect of rise in temperature in Regulated OHE	X, Y values decrease
164)	Location of 3KV Disc Insulators	RC suspensions
165)	Maximum number of OHE allowed for TTC	2
166)	Type of Turn out mast	K 200, B – 200, 8" x 6"
167)	Type of Anchor mast	8" x 6"
168)	Maximum number of tracks on portals N – type O – Type R - Type	4 6 8
169)	Cross section of Upright N – type O - Type R - Type	450 x 450 mm 550 x 550 mm 600 x 600 mm
170)	Length of Upright N – type O - Type R – Type BFB G - Type	10.51 m 10.61 m 10.66 m
171)	Length of End pieces N – type O - Type R – Type BFB G - Type	5.38m, 5.88 m 10.55m, 11.05m 11.55m ,12.05m 8.50 m, 9.00 m
172)	Length of Center piece N – type O - Type R - Type	1.5 to 9 m 1.5 to 9 m 7.5m – 12 m
173)	Cushioning allowed between center piece and end piece	0 – 25 cm
174)	Clear span (distance between two uprights) N – type O - Type R - Type	10 – 20 m 20 – 30 m 30 – 36 m
175)	Types and sizes of Drop arms A –type B – type C - type	300 x 200 mm 300 x 300 mm 150 x 150 mm

176)	Max No. of cantilevers can be covered by drop arm	1 (A- type) 2 (B-type) 3 (C-type)
177)	Speed limit of C Class ODC	8 – 15 Kmph
178)	Maximum speed restriction of 8 wheel Tower car	110 Kmph
179)	Maximum speed restriction of 4 wheel Tower car – type II	40 Kmph
180)	Maximum speed restriction of 4 wheel Tower car – type III	80 Kmph
181)	Type of caution board used at end of elementary section	Power Block Working Limit
182)	Type bond used in Track circuit area	Z bond
183)	Type of Caution board used at Foot Over Bridge	25KV Danger
184)	Caution boards provided at neutral section	500m, 250m, Switch Off, Switch On
185)	Y- value for winch type ATD at 350C	2500 mm
186)	Z- value for winch type ATD at 350C	1250 mm
187)	Y- value for 3 pulley type ATD at 350C	2300 mm
188)	X- value for 3 pulley type ATD at 350C	1050 mm (old) 1300mm (new)
189)	Size of GI bolts used for bonding	16 x 37 x 50mm 20 x 37 x 50mm
190)	Size of S.S. bolt used for Top and Bottom attachments	16 x 50 x 37 mm
191)	Size of S.S. Bolt used at Stay Insulator	10 x 65 x 30mm
192)	Size of G.I. bolt used at Register arm hook	16 x 50 x 37 mm
193)	Various sizes of spanner set used For 10mm bolts For 12 mm bolts For 14 mm bolts For 16mm bolts For 20 mm bolts For guy rod	16 x 17 18 x 19 21 x 23 24 x 26 30 x 32 34 x 36
194)	Location of bent steady arm	Neutral Sections, 4 span over laps
195)	Types of neutral sections -- lengths Over lap type PTFE type Section Insulator	41 m 2.968 m 45 m

	type	
196)	Number of ceramic beads for each Ceramic bead insulator in a PTFE neutral section	54
197)	Location of the PTFE N/s before the STOP signal After the STOP signal	200 m 400 m
198)	Long time clearance	250 mm
199)	Short time clearance	200 mm
200)	Location of Section Insulator type Neutral section	Trip Sheds Loco sheds
201)	Distance between two rails of a Track	Gauge
202)	Distance between centre lines of two tracks for tangent tracks for turnouts	Track Center Track Separation
203)	Allowed range of Track separation	150 – 700 mm
204)	Type of mast used for turnout	Obligatory mast
205)	The point of pantograph leaving the main line to turnout & Entering the main line from turnout	TAKE OFF TAKE ON
206)	Tolerance values of Take OFF, ON values	650- 720 mm
207)	Height difference achieved with stay adjuster between two holes	3 cm
208)	Location of Catenary Double suspension clamp	Anti Creep Center
209)	Station limit means	Home Signal to Last stop signal
210)	11KV crossing on electrified track is done by	Under ground cables
211)	Gross clearances of ODC Class A Class B Class C	>9" (inches) 6"-9" 3"-6"
212)	Net clearances of ODC (for A,B, C respectively)	3", 6", 9"
213)	Speed restriction on ODC (for A, B, C respectively)	40Kmph, 30Kmph (15 on loops), 25Kmph (8 on loops)
214)	Ending cone for single contact wire Ending cone for double contact wire Ending cone for catenary wire Ending cone for feeder wire	1080 1280 1090 1100
215)	PG clamp used for C,F jumpers G jumper	1040 1030

	Cross feed jumpers Section Insulator	1550, 1560 6170
216)	Various Dropper clips used in OHE	49 mm (large) 38 mm (std) 34 mm (reg) 25mm(RRA)
217)	Purpose of rigid dropper	To achieve steady clearance
218)	Length of bridle wire used for Tramway	8.5 m
219)	Diameter and Length of discharge rod wire	40 sq.mm 7.5m
220)	What is the diameter of the contact wire?	12.24mm
221)	What is the diameter of catenary wire?	10.54mm
222)	What is the weight of contact wire per unit length?	0.952kg/m
223)	What is the weight of catenary wire per unit length?	0.602kg/m
224)	What is the permissible current density in contact wire?	4A/sq.m
225)	What is the normal spacing between droppers?	9m
226)	What is the distance between the suspension point and first dropper?	2.25m
227)	What is the length of middle dropper if encumbrance one side is reduced to 900	
228)	What is the diameter of in span dropper?	5mm
229)	What is the diameter of register arm dropper?	7mm
230)	What is the diameter of Rigid dropper?	12.24
231)	What is the location of adjustable dropper?	AT SI
232)	What is the purpose of rigid dropper?	to maintain encumbrance
233)	What is the condemned diameter of contact wire on main line?	8.25mm
234)	What is the condemned diameter of contact wire on loop/yard line?	8.00mm
235)	What is the length of Bridle wire in tramway OHE?	8.5m
236)	What is the permissible gradient of contact wire on main line?	3mm/m
237)	What is the permissible gradient of contact wire on yard line?	10mm/m
238)	What is the max allowed inclination of a dropper?	4 degree
239)	What is the max stagger allowed for contact wire in tangent track?	+/-200mm
240)	What is the allowed range of relative stagger?	0.200mm
241)	What is the standard stagger value of catenary wire?	zero
242)	What is the max allowed stagger for catenary wire on curved track?	200mm
243)	What is the contact wire stagger at section	zero/+/-100mmm

	insulator?	
244)	What is the max stagger of the contact wire at support on curved track?	+/-300mm
245)	What is the clearance between live wire to earth?	50cm
246)	What is the clearance between RC wire to earth?	150mm
247)	What is the clearance between RC wire to OHE?	400mm
248)	What is the clearance between feeder wire to earth?	2m
249)	What is the mini clearance between OHE near FOB to earth?	250 mm
250)	What is the clearance of danger zone?	2m
251)	What is the mechanical clearance?	100mm
252)	What is the steady clearance (allowed range)	25-35cm
253)	What is the width of faively AM-12 type pantograph?	1800mm
254)	What is the width of faively AM-18 type pantograph?	2032mm
255)	What is the standard (vertical & horizontal) long time (LTC) clearance in non coastal area?	270mm
256)	What is the standard (vertical & horizontal) long time (LTC) clearance in coastal area?	320mm
257)	What is the mid span stagger for tangent track?	zero
258)	What is the lateral short time clearance for coastal area?	220mm
259)	What is the vertical short time clearance for coastal area?	270mm
260)	What is the clearance between two OHE in an insulated overlap?	50mm
261)	What is the clearance between two OHE in an un insulated overlap?	20mm
262)	What is the minimum clearance between operating rod and fixed contact of an isolator in open condition?	38-50cm
263)	What is the clearance between runner and contact wire at section insulator?	230mm
264)	What is the separation between two runners of a section insulator assembly?	460mm
265)	What is the min clearance between 25kv feeder and guard wire?	1.2m
266)	What is the min clearance between top live OHE to bottom power line crossing?	6m
267)	What is the length of RC mid earth rail piece?	2m
268)	What is the diameter of Disc insulator?	150mm
269)	What is the length of stay insulator?	52cm
270)	What is the length of bracket insulator?	50cm
271)	What is the length of Pedestal insulator?	42cm
272)	What is the length of core insulator?	50cm
273)	What is the length of Rod insulator?	42cm

274)	What is the length of long creep age path bracket insulator?	1050mm
275)	What is the size of stay tube?	28.4/33.7mm
276)	What is the standard size of bracket tube?	30/38mm
277)	What is the size of large bracket tube?	40.49mm
278)	What is the size of register arm?	28.4/33.7mm
279)	What is the size of normal BFB steady arm?	31/32mm
280)	What is the diameter of anti creep wire?	12.5mm
281)	What is the diameter of larger span wire?	14.7mm
282)	What is the length of C-jumper?	1.6m
283)	What is the location of the C jumper from the centre line of the suspension point?	2.5m
284)	What is the length of F-jumper?	1.6m
285)	What is the cross sectional area of C or F jumpers?	50sq.mm
286)	What is the name of the jumper used at overlap type neutral section?	"F" jumper
287)	What is the distance between two C-jumpers	350mm
288)	What is the name of the jumper provided at anti creep centre?	C-jumper
289)	What is the length of G- jumper?	3.60 to 4 m
290)	What is the other name of G-jumper?	continuity jumper
291)	What is the area of cross feeder jumper?	105sq.mm
292)	What is the area of anti theft jumper?	50sq.mm
293)	What is the name of jumper to avoid theft of OHE?	anti theft
294)	What is the diameter of RC wire?	19.50mm
295)	What is the diameter of stainless steel rope used for ATD?	8.5mm
296)	How many strands are present in G- jumper?	133strands
297)	How many strands are there in C- jumper?	19strands
298)	How many strands are present in catenary wire?	19strands
299)	How many strands are there in Anti creep wire?	238strands
300)	How many strands are there in large span wire ?	37strands
301)	What is length of ss rope used for winch type regulating equipment?	10.5m
302)	What is length of ss rope used for 3 pulley type regulating equipment?	7.02m and 8.02 m (new)
303)	What is the value of linear expansion co-efficient of copper conductor?	$17 \times 10^{-6} \text{m/oc}$
304)	What is the maximum tension length for regulated OHE?	1500 m
305)	What is the maximum tension length for unregulated OHE?	2000m
306)	What is the tension given to the catenary of conventional type unregulated OHE?	1300kg
307)	What is the tension given to the contact wire of conventional type unregulated OHE?	1700kg

308)	What is the tension on the catenary wire of Regulated OHE?	1000kg
309)	What is the tension on the contact wire of Regulated OHE?	1000kg
310)	What is the total tension on tramway type OHE?	1250kg
311)	What is the total tension on Regulated OHE?	2000kg
312)	What is the maximum tension of unregulated OHE?	3000kg
313)	What is the tension provided in Anti creep wire?	1000kg
314)	What is the tension provided in cross feeder wire?	400kg
315)	What is the name of lubricant used at bearing of regulating equipment?	lithium based grease
316)	What is the cross section of RC wire?	147sq.mm
317)	What is the cross section of Anti creep wire?	93.3sq.mm
318)	What is the cross section of large span wire?	125.6sq.mm
319)	What is the distance between two consecutive OHE structures, called?	span
320)	What is the max difference between two consecutive span?	18m
321)	What is the allowed span range of Regulated OHE?	72m
322)	What is the allowed span range of unregulated OHE?	67.5m
323)	What is the maximum span for a high wind pressure zone?	63m
324)	What is the wind pressure at red/heavy zone?	150kg/sq.m
325)	What is the wind pressure at yellow/medium zone?	112.5kg/sq.m
326)	What is the wind pressure at green/ light zone?	75kg/sq.m
327)	What is the maximum span allowed in medium zone?	67.5 M
328)	What is the maximum allowed span for light zone?	72 M
329)	What is the x value of 3-pulley type regulating equipment at 35 ?	1300 MM
330)	What is the x value of 3-pulley type regulating equipment at 50 and half tension length of 750m ?	
331)	What is the span length are standard in multiple of 4.5?	to maintain dropper schedule
332)	What is the difference in levels between the point at supports and the lowest point, called?	sag
333)	What is the reason for the sag in contact wire?	weight of conductor
334)	What is the displacement of conductor from its original position due to wind pressure, called?	Blow off
335)	What is the maximum tensile strength of cadmium copper?	63kg/sqmm
336)	What is the maximum tensile strength of electrolyte copper?	42kg/sqmm

337)	What is the displacement of the contact wire from the centre line of track, called?	stagger
338)	What is the maximum offset of the curve, called?	versine
339)	What will be the radius of 20 curve in feet?	$R = 5730/\Phi = 286.50$
340)	What will be the degree of a 1000m curve?	$\Phi = 1746/1000 = 1.746$
341)	What is the rise of track to counteract centrifugal force called?	super elevation
342)	What is the difference of rail levels in horizontal plane, called	super elevation
343)	What is the max relative gradient of contact wire in two adjacent span on mainlines?	1.5mm/m
344)	What is the max relative gradient of contact wire in two adjacent span on loop line/yard?	5mm/m
345)	What is the vertical lift in OHE due to the static force exerted by the pantograph, called	push up
346)	What is the wave motion in contact wire due to the force exerted by the pantograph under running condition	oscillations
347)	What is the standard implantation value for a tangent track?	2.5m(2.8m)
348)	What is the minimum implantation on platforms?	4.75m
349)	What is the critical implantation allowed in IR?	2.36m
350)	What is the implantation given for portal?	3m
351)	What is the implantation on inside curve?	2.75m/3.1m
352)	What is the implantation on outside curve?	2.65m
353)	What is the other name of implantation?	setting distance
354)	What is the critical implantation allowed in yards?	2.21m
355)	What is the implantation adopted for multi cantilever arrangement?	3.0m
356)	What is the axial distance between catenary and contact wire on vertical plane?	Encumbrance
357)	What is the standard value of encumbrance at single cantilever?	1.4m
358)	What is the encumbrance given to mainline OHE on turnout	0.9m
359)	What is the clearance between the OHE at turnout location?	5cm
360)	Where do we choose for encumbrance more than 1.4m?	1 in 12 emergency cross over/cross over on curved track
361)	What is the initial deflection adopted during grouting called?	Reverse Deflection
362)	What is the maximum deflection of the mast at the top, under permanent load condition?	100mm
363)	What is the maximum deflection of the mast at the contact level due to wind load?	90mm
364)	What is the maximum leaning at a height of 1/3rd of the contact height 1.85?	33mm
365)	What is the height of height gauge bar at LC gate?	4.67m

366)	What is the minimum steady clearance on loop line?	180mm
367)	What is the length of the mast used to erect OHE?	9.5m
368)	What is the embedded length of the mast?	1.35m
369)	What is the minimum embedded portion of the mast?	1/8th of mast length
370)	What is the embedded length of the portal?	1.45m
371)	What is the portion of mast grouted in foundation, called?	embedded length
372)	What is the concrete cushion / bed?	150mm
373)	What is the vertical distance between rail level and top of the foundation?	step distance
374)	What is the step distance / cess level for structures on platforms?	zero
375)	What is the step distance / cess level for regulated OHE?	0.5m
376)	What the distance between top and bottom attachment is for stay and bracket tube?	2m
377)	What is the distance between two centre lines of adjacent tracks?	Track Centre
378)	What is the minimum track centre required to erect a BFB mast?	$2.5+1.5+2.5=6.5$
379)	What is the reverse deflection adopted for a tangent track?	6cm
380)	What is the reverse deflection given for structure on inside track?	+3cm,+6cm
381)	What is the reverse deflection given for structure on outside track?	0,-6cm
382)	What is the distance on earth level from the outer edge of the mast to the embankment, called?	Shoulder Width
383)	What is the minimum shoulder width required to erect the mast?	30cm
384)	What is the minimum shoulder width required to erect mast at anti creep centre and inside curve?	55cm
385)	What is the relative stagger of multi cantilever structure?	zero
386)	What is the concrete ratio by volume required for main foundation for erecting OHE mast?	1:3:6(M100)
387)	What is the concrete ratio by volume required for grouting for erecting OHE mast?	1:2:4(M150)
388)	What is the size of Ballast used for foundation?	45 to 60mm
389)	What is the size of Ballast used for grouting on OHE mast?	20mm
390)	What is the name of the apparatus used to leave space for mast during foundation?	mandrill
391)	What is the stagger value at Neutral section?	zero
392)	What is the cement required for grouting? 312.5kg/cu.m	6.25bags
393)	What is the cement required for foundation?	4.5bags

	225kg/cu.m	
394)	What is the soil bearing capacity of the loose soil?	5500kg/sq.m
395)	What is the soil bearing capacity of the normal soil?	11500kg/sq.m
396)	What is the soil bearing capacity of the rocky soil?	21500kg/sq.m
397)	What is the soil bearing capacity of the Black Cotton (WET) soil?	8250kg/sq.m
398)	What is the soil bearing capacity of the Black Cotton (DRY) soil?	16500kg/sq.m
399)	What is the foundation used for BC (wet) soil?	RWBC/ANBC
400)	What is the foundation used for BC (dry) soil?	RBC
401)	What is the foundation for normal soil inadequate shoulder width?	side gravity type
402)	What is the foundation for loose soil?	pure gravity type
403)	What is the foundation for normal soil sufficient shoulder width?	side bearing type
404)	What is the purpose of stepped base in foundation for black cotton soil?	To over come uplift and upward thrust.
405)	What is the distance between centre lines of two tracks of a turnout, called?	Track separation
406)	What is the track separation for obligatory mast?	150-700mm
407)	What is the size of BFB mast?	6"x6"&8"x8"
408)	What is the size of RSJ mast?	8"x6"
409)	What is the type of mast used for Turnout?	K200/B200
410)	What is the depth of fabricated mast?	300mm
411)	What is the mast used for anchor location?	8"x8"
412)	What is the mast used for overlap intermediate location?	8"x6"RSJ/K150/b150
413)	What is the type of mast used for double cantilever structure?	8"x6"
414)	Which type of mast suitable for withstanding bending moment and but not twisting moment?	BFB
415)	What type of mast is used for withstanding bending moment, twisting and deflection moment?	Fabricated Mast
416)	What is the length of TTC mast?	12.21m
417)	What is the boom length of TTC mast?	5.50,8.00 m
418)	What is the distance between two uprights of a portal?	clear span
419)	What is the size of the section used for N-type portal?	450x450mm
420)	What is the size of section used in G type portal?	250x400mm
421)	What is the type of mast used in place of N-type portal if adequate clearance is not available?	N/BFBU
422)	What is the name of the part used at the corner for supporting upright and end piece of a portal?	knee bracing
423)	What is the name given to the angle used in portal for joining the end piece with centre piece?	covering angle (or) splicing angle

424)	What is the maximum gap that can be adjusted at centre of the boom of a portal?	25cm
425)	What is the section used for TTC mast?	225x300mm
426)	What is the size of cross section used for N/BFBU portal?	150x300mm
427)	What is the extra clearance obtained with special portals like BFB or G uprights?	300mm
428)	What is the height of muffing for OHE foundation?	150mm
429)	What is the location of cross contact bar in OHE?	cross type turnout
430)	What is the CL assembly part used on RT tube for BFB steady arm in case of High speed?	Drop Bracket
431)	What is the location of box type cantilever	TTC mast and Cross over
432)	What is the allowed variation of rail level from the existing rail level?	20 cm
433)	What is the maximum suspension distance used in the design of cantilever assembly?	3.5m
434)	What is the minimum adjustment value which is obtained with a stay adjuster?	30mm
435)	What is the contact stagger for main line at crossing of wire in cross type turnout?	150mm
436)	What is the contact stagger for turnout line for cross type turnout?	300mm
437)	What is the IR value of ceramic bead in dry condition after cleaning? (2.5KV megger)	15 to 20Mohm
438)	What is the maximum allowed separation between two ferrules of ceramic bead insulator?	1.6mm
439)	What is the maximum projection allowed for anti torsion tube?	152mm
440)	What is the maximum overall earth resistance of PTFE N/S?	0.5ohm
441)	What is the distance between two ceramic bead insulators?	768mm
442)	What is the length of ceramic bead insulator?	1100mm
443)	What is the distance between ceramic bead insulator and contact wire splice?	384mm
444)	What is the length of a glass fiber messenger insulator provided on catenary for PTFE?	1400mm
445)	What is the distance between the cut-in insulator and centre line of the mast?	2.5m
446)	What are the encumbrances provided for overlap type neutral section	1400mm,750mm
447)	What is the minimum encumbrance at section insulator assembly of double line wire?	600mm
448)	What is the pre -sag of span carrying section insulator?	zero
449)	What is the minimum track centre at the location of SI assembly erected with free ends of runners towards the turnout	1.65m

450)	What is the minimum track centre at the location of SI erected with free ends of runners away from the turn out?	1.45 m
451)	What is the mechanical clearance between 9-ton insulator and solid core sectioning insulator?	350mm
452)	How many splices allowed in one tension length?	3nos
453)	What is the name of the bond provided at fish plate joint of track?	"L" bond
454)	What is the size of MS flat used for L bond?	40x6mm
455)	How many IR bonds are provided at track circuited area?	2nos
456)	How many IR bonds are provided at LC gate? (double line)	4nos
457)	How many IT bonds are provided at LC gate? (double line)	2nos
458)	What is the name of the mast used for the termination on platforms	Dwarf

PSI BITS

1)	How many BM's are there in a SSP for a double line section?	3
2)	What relay will act when two different phases are bridged?	Wrong Phase Coupling(WPC)
3)	What is the rating of drop out fuse of ATs provided at Station?	1A
4)	What is the value of power factor when KWH is 4500 & KVAH is 5000?	0.9
5)	What instrument used for measuring earth resistance?	Earth resistance megger
6)	What do you measure with Hydrometer?	Specific gravity
7)	What is the purpose of Oil testing kit?	Measuring BDV
8)	What is the unit for Energy consumption?	Watt Hours
9)	What breaker will trip when a fault is there on OHE?	Feeder CB
10)	What do you measure with Meggar?	Insulation resistance
11)	How many BM's are there in a SSP for a single line section?	1
12)	What is meant by polarization index?	R60/R10, R600/R60
13)	How much is the working clearance?	2m
14)	What is the name of solution of water and Sulphuric Acid used in batteries?	Electrolyte
15)	What is the unit for Electric Power?	Watt
16)	What type of fire extinguisher is used for electrical fires?	Dry Chemical Powder
17)	Specific gravity means	Ratio of density of a solution to water
18)	Power factor is the ratio of	True power to apparent power
19)	What is the overall protection of TSS yard against Lightning?	Proving Earth Screen wire
20)	What is the purpose of arcing horns provided for ATs?	As Lightning arrestor
21)	Expand SF-6?	Sulphur Hexa Flouride

22)	What is the unit of earth resistance?	OHM
23)	Which meter is used for measuring current?	Ammeter
24)	What is the value of total resistance when two 10ohm resistances are connected in series?	20 Ohm
25)	What is the value of total resistance when two 10ohm resistances are connected in parallel?	5 Ohm
26)	What CB will trip when there is overload?	LV CB
27)		
28)	Expand DPI	Double Pole Isolator
29)	Expand OTI?	Oil Temperature Indicator
30)	Expand WTI?	Winding Temperature Indicator
31)	Expand BDV?	Break Down Voltage
32)	Expand DGA?	Dissolved Gas Analysis
33)	What is the maximum distance between two discharge rods?	1 Km
34)	What is the name of the material which does not allow the flow of current?	Resistor / Insulator
35)	What is the name of the material which allows the flow of current?	Conductor
36)	What are the voltage ratings primary and secondary of Traction power transformer?	132 KV / 27 KV
37)	What is unit for Voltage?	Volts
38)	What is unit for current?	Amperes
39)	What is unit for Inductance?	Henry
40)	What is the unit for Capacitance?	Farads or micro farads
41)	What is the unit for reactance?	Ohms
42)	What is the unit for Inductive reactance?	Ohms
43)	What is the unit for Capacitive reactance?	Ohms
44)	What is the unit for conductance?	Mho
45)	What is the unit for power factor?	No units
46)	Expand KVAR?	Kilo Volt Ampere Rating
47)	What is the purpose of shunt capacitor bank in TSS?	To improve power factor
48)	What is the unit for Impedance?	Ohm
49)	What is the purpose of multi-meter?	To measure voltage, current, resistance of both AC and DC
50)	Which meter is used for temperature measurement?	Thermometer
51)	What is the unit for temperature?	Degree Celsius or Degree Fahrenheit
52)		
53)	What is the purpose of transformer oil in transformer?	Cooling and insulation
54)	What is the main safety item required for disconnecting buried rail connection?	Rail jumper
55)	What is the maximum value of combined earth resistance of AT, BT?	10 Ohm
56)	What is the maximum value of combined earth resistance of SP, SSP?	2 Ohm
57)	What is the maximum value of combined earth resistance of	0.5 Ohm

	TSS?	
58)	What is the maximum value of combined earth resistance of LC Gates?	10 Ohm
59)	What is the maximum value of combined earth resistance of PTFE Neutral Section?	0.5 Ohm
60)	What is the name of BM through which OHE supply is extended from one TSS to another?	Bridging BM
61)	How many CBs are required for a shunt capacitor bank?	1
62)	How many parallel BMs are there in a SP?	2
63)	How many circuit breakers in a TSS?	7 (incl capacitor bank)
64)	What is the size of bus bar arrangement used in TSS for a 21.6MVA transformer?	50mm
65)	What are the min & max clearances of SPI in open condition?	38cm – 50cm
66)	What is the gap of spheres to test BDV of transformer oil?	2.5mm
67)	How many Bridging Mains are there in a SP?	2
68)	What is the gap of arcing horns of power transformers on HV side and LV side?	760mm 270mm
69)	Expand BPI?	Bi-Polar Isolator
70)	Rating of lightening arrester on 132 KV side and 25KV side?	120KVA, 42KVA
71)	What is the purpose of AT in a station?	to provide LT supply to CLS
72)	What is the purpose of AT in TSS?	battery charger and lighting purpose
73)	There two SSPs in the feeding zone of a TSS on both sides how many sub sectors are there in that feeding zone?	8
74)	In the same feeding zone there two SSPs and eight isolators, how many elementary sections are there	16
75)	What is the arcing horn gap of AT?	±100mm
76)	What is the min and max.Gas pressure in SF6 CB?	4.6Kg (min) 5.5Kg (Max)
77)	At what air pressure the gas CB open automatically?	10.8 Kg/cm ²
78)	What is the cross section of MS flat used for earthing of secondary terminal of traction transformer?	75 x 8 mm
79)	What is the max.Air pressure in gas CB or what pressure, pressure relief valve operates?	18kg / cm ²
80)	What CT protects the transformer from internal faults (differential)?	Turret or bushing CT
81)	What type of tap changer is used for traction transformer?	off load tap changer
82)	What type of earthing used for equipment is in a substation?	double earthing
83)	What extra item is provided for an isolator at trip shed?	earthing heel
84)	How the temperature of the transformer winding is known?	winding temperature indicator (WTI)
85)	What is the meter that measure watt-hour?	Energy meter
86)	How the arc quenched in the gas CB?	SF6 gas
87)	What is the dia 25KV bus bar of 12.5 MVA transformer TSS	36/28mm
88)	How the feed is extended from one TSS zone to another TSS zone?	by closing bridging interrupter in SP
89)	What is the impedance of OHE / TKM in double line without RC?	0.24 ohms/KM

90)	What is the max.current on secondary side of 10KVA AT?	43.5A
91)	What is the burden of 25KV type-II PT?	100 VA
92)	What is the burden of 25KV CT?	60 VA
93)	Which CT on 25KV side gives total load current?	Transformer CT
94)	What is the time given for Re-closing of CB of shunt capacitor bank?	5 minutes
95)	What is the purpose of tap change in AT?	By changing primary taps, variation on secondary voltage is obtained
96)	How the entry of moisture is restricted in traction transformer?	Breather
97)	Where 33KV pedestal insulators are used for?	132KV DP isolators
98)	Ratio of 21.6MVA Transformer on 25KV side?	1500/750-5A
99)	Clearance between 25KV bus bar to ground?	3.80mts
100)	Primary and secondary voltage of type-II PT?	25 KV/110V
101)	Type of cooling of 21.6/30.24MVA transformer?	ONAN / ONAF
102)	BDV of 132/25KV transformer oil?	45KV/minute
103)	2.5KV meggar is used for?	to measure IR value in primary 132/25KV equipment
104)	Fuse rating of 110 volt battery charger?	2 Amp
105)	Ampere Hour rating of 110v battery?	100 AH, 40AH
106)	Max. and Min. voltages	27.5KV to 19KV
107)	Where 500V meggar is used?	to check the IR values in secondary side of PT,AT and CT
108)	Ratio of 132KV CT?	400-200/5amp
109)	Rating of drop out fuse for 10KVA AT?	1 A
110)	How many interruptors are there in TSS?	5 Nos (including BCX)
111)	What is meant by feeding zone?	SP to SP fed by one TSS
112)	What is the minimum PF required?	0.9 – 0.95
113)	How the PF is improved?	by providing shunt capacitor bank
114)	How many 25KV CTs are in TSS?	6nos + 1no (capacitor bank)
115)	What relay will act when a fault across very close to TSS?	OCR , MHO relay
116)	What relay will act when transformer overloaded?	LV IDMTL
117)	What will happen when a fault across on the phase of 132KV side?	HV CB will open
118)	What relay will act when there is a heavy gas collection inside the transformer body?	Buchholz relay
119)	What happens if CT secondary becomes open circuit?	High voltage in the secondary circuit.
120)	What happens if PT secondary becomes open circuited?	No output
121)	What relay will act when short circuit across on OHE at farthest point of feeding zone?	MHO relay (DPR)
122)	What is the resistance of a closing coil?	30 ohms
123)	Type of motor used in 132KV or LVCB mechanism box is	110 volts D.C

124)	What is the material provided in breather?	Silica gel
125)	What is the purpose of oil in the choke of breather?	to observe foreign particles
126)	What is the IR value of 120KV LA?	> 5000 Mega ohm
127)	When a bridging BM in an SP opens automatically?	When feeding supply fail.
128)	When a bridging BM in an SP can be closed?	when one side there is no catenary voltage
129)	What is the fuse rating of type-II PT?	2 amps
130)	What for 100KVA AT is provided in TSS?	power supply to filter plant
131)	MVA means	Mega Volt Ampere
132)	Current carrying capacity of 21.6MVA transformer?	864 A
133)	What is name of compound used for battery terminal connections?	Petroleum jelly
134)	Expand OIP	Oil Impregnated Paper
135)	Expand PRD	Pressure Relief Device
136)	Voltage rating of LA is given by the formula	1.1 x 0.8 x line to line voltage
137)	For effective earthing system Coefficient of earthing is	0.8
138)	For non effective earthing system coefficient of earthing is	1.0
139)	What is current setting of OCR?	150% of rated current
140)	What is the secondary current of AT (10 KVA)?	40 A
141)	Variation in Tap changes for Traction transformer	+10% to -15% (in steps of 5%)
142)	What is the CK 9 gap of the 132KV MOCB(BHEL)	10+/-0.5 mm
143)	What is the Buchholz relay setting for tripping	300cc
144)	What is the clearance between phase to phase on 132KV side	2.06mtrs
145)	What is the ground clearance on 132kv Side	4.6 mtrs
146)	What is the ground clearance on 25kv Side	3.8mtrs
147)	What is the BDV of Transformer oil in service	40kv/1min
148)	The upper limit of the acidity of the transformer oil is	0.5mg KOH/gm
149)	What is the % variation between taps of the 132/25 kv power transformer	5%
150)	The inter tripping of the transformer will trip these circuit breakers	HV AND LV CB's
151)	Capacity of the fuse of the AT in HV/LV side	1amp/63amps
152)	The percentage series reactor is used in capacitor bank	13%
153)	Earthing ring is provided inside control room at the height of	30cm
154)	Capacity of the secondary fuse of the PT transformer	2 amps
155)	Type of earthing used in the sub stations are	Pipe type
156)	The size of earth electrode used in TSS is	4.1mtrs
157)	Inter trip of the transformer will not occur with out this relay	86 A/B relay
158)	What is the abbreviation of HRC fuse	High Rupturing Capacity
159)	What is the actual current passing through Ammeter in the control panel if the reading shows 50 amps	5.6 amps
160)	Oil level in the conservator must be maintained at 35 degrees centigrade	More than half
161)	D1 and D2 relays in TSS control panel are for the purpose of	Alarm
162)	In case of Total DC failure all CB's in the tss will trip with the help of	Capacitor switching device
163)	Auto re closing system is connected to	25kv feeder CB

TDMS Application Questions

1. **What does TDMS stand for?**
A Traction Data Management System
B Traction Distribution Management System ✓
C Train Distribution Management System
D Track Distribution Management System
2. **Which organization developed TDMS for Indian Railways?**
A RDSO
B IRIEEN
C CRIS ✓
D Railway Board
3. **What is the primary purpose of TDMS mobile application?**
A Train booking
B Asset management and monitoring ✓
C Passenger information
D Ticket checking
4. **Which feature allows real-time capturing of OHE defects in TDMS?**
A GPS based foot patrolling ✓
B Remote monitoring
C Automatic detection
D Manual reporting
5. **What type of reports can be generated automatically in TDMS?**
A Daily reports only
B Weekly reports only
C One page reports ✓
D Annual reports only
6. **TDMS provides dashboard for monitoring KPIs of which equipment?**
A OHE and PSI only
B RCC and TPC only
C OHE, PSI, RCC, TPC and Tower Wagon ✓
D Tower Wagon only
7. **Which feature in TDMS allows requisition of power blocks?**
A Manual request
B Automatic generation
C SMS alert to TPC ✓
D Email notification
8. **What is captured along with breakdown reporting in TDMS?**
A Location only
B Time only
C GPS location and photographs ✓
D Equipment type only
9. **TDMS provides access to circulars from which organizations?**

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- A Railway Board only
- B RDSO only
- C Railway Board, RDSO, IRIEEN, Zonal/Divisional and CRIS ✓
- D Zonal Railway only

10. **Who are the intended users of TDMS mobile application?**

- A General public
- B Passengers
- C Indian Railways internal users of Traction directorates ✓
- D All railway employees

UDM Application

11. **What does UDM stand for?**

- A User Data Module
- B User Depot Module ✓
- C Universal Depot Management
- D Unified Data Module

12. **Which organization developed UDM for Indian Railways?**

- A RDSO
- B CRIS ✓
- C Railway Board
- D IRIEEN

13. **When was UDM launched pan-India by Railway Board?**

- A 14.09.2020
- B 26.11.2020 ✓
- C 05.01.2021
- D 28.09.2020

14. **What is the primary purpose of UDM?**

- A Train operations
- B Material management at user depots ✓
- C Passenger services
- D Signal control

15. **Which system is UDM fully integrated with?**

- A IREPS only
- B IMMS only
- C Both IREPS and IMMS ✓
- D SCADA

16. **What type of ledgers can be created in UDM?**

- A Manual ledgers
- B Computerized ledgers ✓
- C Paper ledgers
- D Temporary ledgers

17. **What does DMTR stand for in UDM context?**

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- A Daily Material Transaction Report ✓
- B Divisional Material Transfer Report
- C Data Material Transaction Record
- D Daily Maintenance Transaction Report

18. Which railway zones were covered in the first phase of UDM implementation?

- A All zones
- B Zonal Railways, CORE, NF Con ✓
- C Production Units only
- D Selected divisions only

19. What inventory method is facilitated by UDM for material issue?

- A LIFO
- B FIFO ✓
- C Random
- D Average cost

20. What type of analysis can UDM perform on material consumption?

- A Monthly analysis only
- B Vendor-wise and make-wise analysis ✓
- C Cost analysis only
- D Quantity analysis only

Note: ✓ indicates the correct answer for each question.