Annexure-A

SYLLABUS FOR JE/TRD TEST IN TRACTION DISTRIBUTION ORGANISATION

I. OHE:

1. Different systems of OHE
2. Brief history of electrical Traction on Indian Railways
3. General supply and feeding arrangement - Sectioning arrangements, basic principles of sectioning.
4. Determination of copper section - Seg-tension in conductors - Temperature effects-Span lengths wind pressure - Blow off stagger - factors effecting the stagger
5. OHE in curved tracks versine - super elevation - limitations
6. Schedule of dimensions- Basic principles of checking the OHE lay out plans- Survey pre-sagging plans
7. Types of overlaps- Jumpers- Droppers etc.
8. Cantilever assembly- ABCD dimensions and other pertaining calculations
9. Regulations OHE- Advantages - Anti creep - limitations for tension lines - mechanical advantages - Y,Z measurements pulley block type and winch type ATD's
10. Type of wiring in turn outs-crossings-crossovers. Section insulators erection assembly details - adjustments
11. Types of OHE termination and anchoring - types of neutral section and their usage.
12. Different types of supports - Masts portals - Head spans Multiple structure - Loadings of masts - Bonding movements.
13. 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.
14. Attention towards breakdowns - accidents, relief train particulars, Tower car particulars, wring train composition movements of tower car, motor trolley, caution orders etc.
15. Types of power blocks, emergency, local shadow, pre-arranged longitudinal protection, cross protection dead section entry of locomotives.
16. Bonding - earthing of structures - study of bonding and earthing code

17. Employment schedules - Foundation charts - Pegging plans layout plans, SEDs-Tensioning charts - Erection of OHE marking foundations Erection-SPEs selection -Cantilever section – wing adjustments - pre-commissioning test - commissioning.

18. OHE material -85 and IS sections - conductors - Tin bronze fittings-aluminium bronze fittings- insulators-stores collection and inspection and indenting-testing

19. 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.

20. 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.

21. Safe working rules- G&SR relating to tower car movement and motor trolley movements – station working rules- safety rules -IE rules -JE act - Induction effects.

22. Various types of tower cars- their operation, maintenance and common failures..

23. Special maintenance instructions, TI and MI.

24. Power Line Crossings- Rules and regulations.

II. Power Supply Installations (PSI)

1. Layout of a grid sub-station - spacing between two sub-stations. Traction Transformers details, various types of control post - equipment details, circuit breakers- Interrupters and their working.

2. Earthing of Sub-Stations - Rules and regulations to follow.

3. Protective arrangement for feeders - for transformers against lightening, various types of relays like Electron Magnetic, Static and Numerical Type with their merits and demerits- details of testing.

4. Current transformers - potential transformers - LT auxiliary transformers-Transformers 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 & MI.

7. Electrical fires.

III. Remote Control Equipments

1. Different makes of remote control equipment's in use on Indian Railways- Transmission of Telecommands - different components of SRC equipment - Function of repeaters - Allocation of Channel frequency - Grouping of switching stations-Reception of Telecommands at controlled posts - Display of indications of mimic panel – power block - sophisticated measuring instructions used in RC maintenance, schedules of RC equipment's - Technique of soldering.

2. Special maintenance instructions, TI & MI.

3. Working of SCADA, specifications, testing equipments like OLIVER'G. Thermo vision camera, CB Analyser, LA's, leakage current monitoring, TAN Delta Test Kit and other standards etc.

IV Official language policy.

20/11/25

(P.Gulwanth singh)
ADEE/TRD/HYB
For Sr.DEE/Traction/HYB

सहायक मंडल विद्युत इंजीनियर
Assistant Divisional Electrical Engineer/TRD
हैदराबाद मंडल, द.म. रेलवे
Hyderabad Division, S.C. Railway
सिकंदराबाद.
SECUNDERABAD.

TRD Question bank for JE LDC-2025

S.No.	Question	option 1	Option 2	Option 3	Option 4	Answer
1	Yard line interrupter is denoted by B.S. i.e.	Bus Switch	Breaker Switch	Breaker Siding	Blocking Siding	**Breaker Siding**
2	Expand CRS?	Commissioner of Rail Security	Commissioner of Railway Staff	Chairman of Rail Security	Commissioner of Rail Safety	**Commissioner of Rail Safety**
3	Expand RRI?	Route Relay Interface	Rail Relay Interlocking	Route Relay	Rail Relay Interface	**Route Relay interlocking**
4	Expand RKM?	Rail Kilo Metre	Railway Kilo Metre	Route Kilo Metre	Road Kilo Metre	**Route Kilo Metre**
5	Expand MS?	Medium Steel	Mild Steel	Modified Steel	Mould Steel	**Mild Steel**
6	Expand EIG?	Electrical inspector to the government	Electrical informer to the government	Engineering inspector to the government	Electrical inspector general	**Electrical inspector to the government**
7	Expand ATS?	Actual Toe Switch	Auxiliary Toe Switch	Additional Toe Switch	Auto Toe Switch	**Actual Toe Switch**
8	Expand SRJ?	Switch Rail Joint	Switch Rail Joist	Stock Rail Joist	Stock Rail Joint	**Stock Rail Joint**
9	Expand SEJ?	Switch Expansion Joist	Stock Rail Joint	Switch Expansion Joint	Stock Rail Joist	**Switch Expansion Joint**
10	Expand EHRL?	Extended Highest Rail Level	Embedded Highest Rail Level	Existing Highest Rail Level	Equal Highest Rail Level	**Existing Highest Rail Level**
11	Expand MCC?	Maximum Cantilever Cross arm	Multiple Cantilever Cross arm	Modified Cantilever Cross arm	None of the above	**Multiple Cantilever Cross arm**
12	Expand MRT?	Medical Relief Train	Modern Relief Train	Medical Relaxed Train	Modern Relaxed Train	**Medical Relief Train**
13	Expand NETRA?	Network of Electrification, Testing and Reporting	Network of Electrification, Testing and Recording	Network of Electrification, Training and	Both a and b	**Network of Electrification, Testing and Recording**
14	Expand SPART?	Self Propelled Accident Relief Train	Self Propelled Automatic Relief Train	Self Propelled Alternate Relief Train	Self Propelled Auxiliary Relief Train	**Self Propelled Accident Relief Train**
15	Maximum span length in unregulated Tramway OHE is	45 metres	36 metres	30 metres	22.5 metres	**30 metres**
16	Maximum span length in regulated Tramway OHE is	72 metres	61 metres	67.5 metres	63 metres	**63 metres**
17	Difference between two consecutive span length should not be more than	25 m.	20 m.	18 m.	16 m.	**18 m.**
18	In AC traction , maximum span length in unregulated OHE is	72 m.	67.5 m.	63 m.	61 m.	**67.5 m.**
19	If unequal encumbrance is used between two OHE structures, maximum span length will be	72 m.	67.5 m.	61 m.	63 m.	**67.5 m.**
20	Determination of maximum span length does not depend upon	Blow-off.	Versine of track.	Encumbrance	Gradient.	**Gradient.**
21	In AC traction, maximum tension length(unregulated) may be permissible in yard :-	1500 m	1600 m	1800 m	2000 m	**2000 m**
22	how many splices allowed in one tension	2	3	4	5	**3**
23	Maximum wind pressure is considered to design OHE structures for Red/heavy zone	180 kgf /sq. m.	160 kgf /sq. m.	150 kgf /sq. m.	110 kgf /sq. m.	**150 kgf /sq. m.**
24	Maximum wind pressure is considered to design OHE structures for Yellow/medium zone	112.5 kgf /sq. m.	125 kgf /sq. m.	109.5 kgf /sq. m.	102 kgf /sq. m.	**112.5 kgf /sq. m.**
25	Maximum wind pressure is considered to design OHE structures for Green/light zone	112.5 kgf /sq. m.	105 kgf /sq. m.	75 kgf /sq. m.	88 kgf /sq. m.	**75 kgf /sq. m.**
26	What will be the sag (S) in the conductor? Where, L= span length, T= tension in theconductor & W = per meter weight of	$S = WL^2/T$	$S = WL/8T$	$S = WL^2/8T$	$S = TL^2/8\ W$	**$S = WL^2/8T$**
27	Rise of one side rail of same track to counteract centrifugal force , which developed during the motion of body on a	blow-off	versine	super elevation	gradient of track	**super elevation**
28	Maximum deflection of mast at contact wire level due to wind pressure, is allowed	80mm.	70mm.	60mm.	40mm.	**60mm.**
29	Maximum deflection of mast at top due to load is allowed	80mm.	70mm.	60mm.	40mm.	**80mm.**
30	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	To maintain proper tension.	To accommodated section insulator in turnout OHE	To maintain proper stagger.	None of the above.	**To accommodated section insulator in turnout OHE**
31	Maximum permissible relative gradient of contact wire in two adjacent span shall not be greater than on main lines	1.5 mm /m.	2 mm /m.	3 mm /m.	4 mm /m.	**1.5 mm /m.**
32	Maximum permissible relative gradient of contact wire in two adjacent span shall not be greater than on sidings	2 mm /m.	3 mm /m.	4 mm /m.	5 mm /m.	**5 mm /m.**
33	where do we choose for encumbrance more than 1.4m?	1in12 emergency cross over	cross over on curved track	1in 8 1/2 emergency cross over	both 'a' and 'b'	**both 'a' and 'b'**
34	Maximum clean span for "N" type portal	10-20 m	1 –10 m	20-30 m	30 –40 m	**10-20 m**
35	Maximum clean span for "O" type portal	10-20 m	20-30 m	30-40 m	40-50 m	**20-30m**
36	Maximum clean span for "R" type portal	20-30 m	30-40 m	40-50 m	50-55 m	**30-40m**
37	Dimension of "N" type portal angle is	65 x 65 x 6mm	70 x70 x 8mm	65 x 65 x 8mm	70 x 70 x8 mm	**65 x 65 x 6mm**
38	What is length of medium super mast?	3.25m	2.35m	1.35m	None of the above	**2.35m**
39	What is length of short super mast?	3.25m	2.35m	1.35m	None of the above	**1.35m**
40	Which type of ODC is permitted in electrifi	'A' class ODC	'B' class ODC	'C' class ODC	All of the above	**All of the above**
41	In 25 kV AC traction, if clearance between ODC & contact wire is more than 250 mm than ODC permitted with	No speed restriction & with power block	No speed restriction & with out power block	15 kmph speed & with out power block	None of the above	**No speed restriction & with out power block**
42	The distance between adjacent splices should not more than	300 m	200 m	100 m	250 m	**300 m**
43	Speed of tower wagon, when checking contact wire level & stagger	20 km/h	10 km/h	15 km/h	25 km/h	**10 km/h**
44	Foot patrolling is carried out by the technician of the suburban sections once in	One week	Two week	Three week	Four week	**One week**
45	Periodicity of contact wire ending clamp visual inspection is	one year	2 years	4.5 years	8 years	**4.5 years**
46	Periodicity of contact wire ending clamp replacement by new one is	4 years	9 years in alternate POH	4.5 years	8 years	**9 years in alternate POH**
47	What is the Large span wire ending cone ID number?	1121	1118	1130	1280	**1130**
48	What is shown in mutually contrast colour in a OHE sectioning diagram?	Sector	Sub-Sector	Elementary Section	None of the above.	**Elementary Section**
49		a) 1,3,4	2,4	1,2,3	all of these.	**all of these.**

50	Max. Height of X-class Locomotive above rail level for a width of 305 mm on either side of centre of	5225 mm	5550 mm	4470 mm	None of these	**4470 mm**
51	If length of any package before loading exceeds _____it is to be treated as ODC or out of gauge	13651 mm	13716 mm	13825 mm	None of these	**13716 mm**
52	If width of any package before loading exceeds _____it is to be treated as ODC or out of gauge load.	2885 mm	2970 mm	2997 mm	None of these	**2997 mm**
53	If top width of any package before loading exceeds _____ it is to be treated as ODC or out of gauge	610 mm	622 mm	632 mm	None of these	**610 mm**
54	If height at centre of any package before loading exceeds _____it is to be treated as ODC or	2134 mm	2743 mm	2885 mm	None of these	**2743 mm**
55	If height at corner of any package before loading exceeds _____it is to be treated as ODC or	2134 mm	2743 mm	2885 mm	None of these	**2134 mm**
56	IRCAMTECH	Indian Railways Council for Advanced Material Technology	Indian Railways Committee for Advanced Material	Indian Railways Centre for Advanced Material Technology	Indian Railways Centre for Advanced Maintenance	**Indian Railways Centre for Advanced Maintenance**
57	IRIEEN	Indian Railway Institute of Entertainment Engineer	Indian Railway Institute of Education Expert	Indian Railway Institute of Electrical Expert	Indian Railway Institute of Electrical Engineering,	**Indian Railway Institute of Electrical Engineering, Nasik**
58	MR	Material Resources	Minister of Railway	Modernization of	Member Railway	**Minister of Railway**
59	Yard line isolator switch is denoted by S.S. i.e	Sectioning Switch	Switch Main	Sectioning Siding	Switch Siding	**Switch Siding**
60	In AC traction , maximum span length for high wind pressure zone?	72 m.	67.5 m	63 m.	61 m.	**63 m.**
61	In AC traction , maximum span length for medium wind pressure zone?	72m	67.5 m.	63m	61m	**67.5 m.**
62	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	**Where contact wire wear is more**
63	what is the presag of span carrying section insulator?	100mm	150mm	zero	50mm	**zero**
64	At level crossing gate, maximum height of rail height gauge from the road surface is	4.38m	4.67m	4.80m	4.45m	**4.67m**
65	At level crossing gate, minimum distance of rail height gauge from the nearest track should be	4m	8m	10m	12m	**8m**
66	Droppers are made out of	Annealed copper	Hard drawn copper	Cadmium copper	Bronze	**Hard drawn copper**
67	In AC traction , how many droppers in 72 m span length	9 Droppers	10 Droppers	8Droppers	12Droppers	**9 Droppers**
68	In AC traction , how many droppers in 58.5 m span length	9droppers	8droppers	7droppers	6droppers	**7droppers**
69	What is the diameter of the rigid dropper?	5mm	7mm	12.24mm	None of above	**12.24mm**
70	Condemning size of 107sq mm wire on loop/ yard line?	8.93mm	8.34mm	8.25mm	8.00mm	**8.00mm**
71	What is the length of Briddle wire in tramway OHE?	8.5m	8m	10.5m	None of the above	**8.5m**
72	What is the diameter of the Anti-creep wire?	15.2mm	12.5mm	14.7mm	9.54mm	**12.5mm**
73	Maximum stagger is allowed at mid span is	229mm	200mm	152mm	100mm	**100mm**
74	The displacement of contact wire from its original position due to wind pressure across the track is called	Blow-off	Versine	Stagger	Super elevation	**Blow-off**
75	On curved track , contact stagger is 300 mm. at support, what will be the max. catenary stagger	300mm	200mm	100mm	Zero	**200mm**
76	What is the mid span stagger for tangent track?	zero	100mm	200mm	400mm	**zero**
77	Centrifugal force (P) is equal to	Mass x acceleration	Mass x velocity	Weight x acceleration	Velocity x acceleration	**Mass x acceleration**
78	what is the relative stagger of multi cantilever structure?	200mm	100mm	zero	none of the above	**zero**
79	What is the range of relative stagger in OHE	100-200mm	50-100mm	0-200mm	100-300mm	**0-200mm**
80	The height of cross over contact wire should be maintained 50 mm above from main	5 m towards turn out	10 m towards turn out	15 m towards turn out	20 m towards turn out	**10 m towards turn out**
81	what is the contact stagger for turnout line for cross type turnout?	200mm	300mm	400mm	500 mm	**300mm**
82	what is the contact stagger for main line at crossing of wire in cross type turnout?	200mm	300mm	150mm	500 mm	**150mm**
83	what are the encumbrances provided for overlap type turnout?	1400mm	750mm	900mm	both 'a' and 'c'	**both 'a' and 'c'**
84	At section insulator location , encumbrance should not be less than	152 mm	320 mm	450 mm	600 mm	**450 mm**
85	Minimum clearance between section insulator assembly and adjacent track is	5.3 m	5 m	4.751 m	4.725 m	**4.725 m**
86	Section insulator works like an insulated overlap with a major difference	Can be negotiated only at low speed	Can be negotiated only at high speed	Can be negotiated at normal speed	None of the above	**Can be negotiated only at low speed**
87	Track separations of section insulator when free ends of runners towards center of the turnout?	1.72 m	1.92 m	1.65 m	1.46 m	**1.65 m**
88	Track separations of section insulator when free ends of runners away from center turnout?	1.72 m	1.65 m	1.52 m	1.45 m	**1.45 m**
89	Horizontal clearance between two runners of ac section insulator is	500 mm	460 mm	320 mm	200 mm	**460 mm**
90	How many "C" jumpers are used in 1500 m tension length	2	3	6	5	**3**
91	tension length. Among three, one is provided at anti-creep point where other two "C" jumper's are provided?	near anticreep location	between 2nd & 3rd dropper	adjacent span length of anticreep location	between ATD & anticreep location	**between ATD & anticreep location**
92	Distance of "C" jumper's from the nearest mast	4.5 m	5.6 m	6.75 m	9 m	**5.6 m**
93	"F" jumpers is provided in both anchoring span of insulated overlap between	Catenary & contact wire of OOR(out of run) OHE	OOR (out of run) OHE & IR(in run) OHE	Catenary & contact wire of IR OHE	Across cut in insulator	**OOR (out of run) OHE & IR(in run) OHE**

94	"F" jumpers is also called	cut in jumper	continuity jumper	flexible jumper	potential equalizer	**potential equalizer**
95	"C" jumper are connected in the direction of traffic with the free end facing due to	To prevent open the strands of jumper by air pressure which exerted	To avoid panto entanglement with jumper	To avoid hard spot in contact wire	To provide un interrupted path for pantograph	**To prevent open the strands of jumper by air pressure which exerted**
96	from the lug due to improper soldering. To overcoming this problem, it has been decided to provide additional piece of	50 cm	80 cm	100 cm	120 cm	**80 cm**
97	What is the allowed separation between two C jumper in unregulated OHE/	350 m	400m	100 m	None of the above	**400m**
98	Cross section area of cross feeder jumper is	50 sq. mm	97 sq. mm	105 sq. mm	107 sq. mm	**105 sq. mm**
99	Cross section area of anti theft jumper is	50 sq. mm	97 sq. mm	105 sq. mm	107 sq. m	**50 sq. mm**
100	"G" jumpers is also called	cut in jumper	continuity jumper	flexible jumper	potential equalizer	**continuity jumper**
101	Cantilever assembly, both insulators are located nearer to the mast	To avoid contamination due to steam & diesel locomotives	To hold the tubes in proper tension	To Cantilever assembly is swiveling type	To avoid transferring the weights on OHE	**To avoid contamination due to steam & diesel locomotives**
102	The arrangement of the cantilever assembly does not depend upon the	Height of contact wire	Super elevation	Encumbrance	None of the above.	**None of the above.**
103	The tubes of the cantilever assembly are made out of	Aluminum bronze	Aluminum	Electrolyte copper	Galvanized steel	**Galvanized steel**
104	bracket tube beyond the centre of the catenary suspension bracket for future adjustment?(As per RDSO letter	400 mm to 300 mm	400 mm to 100 mm	150 mm to 200 mm	50 mm to 100 mm	**150 mm to 200 mm**
105	minimum distance between register arm hook clamp & top of the bracket tube insulator	100 mm	150 mm	200 mm	300 mm	**100 mm**
106	projection of register arm beyond the steady arm clamp should be (As per RDSO	50 mm to 300 mm	150 mm to 200 mm	150mm to 400 mm	250 mm to 500 mm	**150 mm to 200 mm**
107	In cantilever assembly, distance between register arm tube & anti wind clamp strap should be	3 to 5 cm	5 to 9 cm	9 to 12.5 cm	15 to18 cm	**3 to 5 cm**
108	Why gap should be required between register arm tube & anti wind clamp strap	To avoid hard spot	To hold the register arm	To maintain proper height & stagger	To hold steady arm	**To avoid hard spot**
109	What is the material of normal steady arm (i.e. BFB section) ?	Aluminum alloy	Aluminum bronze	G.I.	Cadmium copper	**Aluminum alloy**
110	What is the minimum steady clearance on loop line?	180 mm	250 mm	160 mm	100mm	**180 mm**
111	What is allowed variation from the existing rail level?	20cm	25cm	30 cm	60 cm	**30 cm**
112	Tie rod insulator is used in isolator switch assembly in between	Operating Rod & Moving blade	Operating Rod & Fixed contact	Switch body & fixed contact	Switch body and moving contact	**Operating Rod & Moving blade**
113	ODC movement should be accompanied by OHE staff, when clearance between ODC &contact wire is less than	390 mm	340 mm	320 mm	250 mm	**250 mm**
114	If the gross clearance between ODC & fixed structure is 228.6 and above, than ODC is called	'A' class ODC	'B' class ODC	'C' class ODC	All of the above	**'A' class ODC**
115	If the gross clearance between ODC & fixed structure is in between 228.6 mm to 152.4 mm, than ODC is called	'A' class ODC	'B' class ODC	'C' class ODC	All of the above	**'B' class ODC**
116	If the gross clearance between ODC & fixed structure is in between 152.4 mm to 76.2 mm,than ODC is called	'A' class ODC	'B' class ODC	'C' class ODC	All of the above	**'C' class ODC**
117	What will be the "regulating ratio" of winch type Auto Tensioning Device (ATD) ?	01:01	2:1	3:1	5:1	**5:1**
118	ATD & its parameters is design for the standard temperature	4º C	16º C	35 º C	65 ºC	**35 º C**
119	In Winch type ATD, the measurement 'Y' is the distance between	Rail level & bottom of the counter weight	Top of muff & bottom of the counter weight	Centre of fixed pulley & top of the counter weight	None of the above	**Top of muff & bottom of the counter weight**
120	In 3- pulley block ATD, the measurement 'Y' is the distance between	Rail level & bottom of the counter weight	Top of muff & bottom of the counter weight	Centre of fixed pulley & top of the counter weight	None of the above	**Top of muff & bottom of the counter weight**
121	What is the tension given to the catenary wire of conventional regulated OHE?	1700 kgs	1000 kgs	2000 kgs	1250 kgs	**1000 kgs**
122	What is the tension given to the contact wire of conventional regulated OHE?	1700 kgs	1300 kgs	2000 kgs	1000 kgs	**1000 kgs**
123	Check the condition of SS wire rope through magnifying glass for	Loose wire/strands and bird caging	Broken wire/strands	Rusting, pitting/corrosion	All of the above	**All of the above**
124	What is the diameter of SS rope used for ATD?	15.2 mm	12.5mm	8.5 mm	9.54 mm	**8.5 mm**
125	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	**All of the above**
126	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 &	8- wheeler tower wagon with equipped such facilities	Recording car	All of the above	**All of the above**
127	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	**Three months**
128	The current collection test is carried out by the AEE/TRD over his entire section within	One month	Three months	Six months	One year	**Six months**
129	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	All of the above	**To rectify the defects ,which are developed during one year service**
130	From any live part of the OHE, tree branches should not be nearer than	0.5 m	1 m	2 m	4 m	**4 m**
131	To check free movement of ATD, what weight is required for pulling counter weight	10 kgf	5 kgf	20 kgf	25 kgf	**10 kgf**
132	Foot patrolling is carried out by the technician of the section (Main Line) and yard once in	12 days	20 days	15 days	10 days	**15 days**
133	Foot patrolling is carried out by the JE/SE of the sections once in	Three month	Six month	Four month	Two month	**Six month**
134	PG clamps (8no.) from 'G' jumper location can be reused during POH ?	Check, clean & reused at same location	Reused at other location after checks, clean in workshop and	Reused after one year after checks, clean in workshop	Can not be reused	**Reused at other location after checks, clean in workshop and OHE**

135	Normal implantation on main line.	2.21 M	2.36 M	2.40M	2.80M	**2.80M**
136	Minimum implantation on yard	2.36 (critical)	2.6	2.3	None of these	**2.36 (critical)**
137	Minimum implantation permitted at main line (New Electrification)	2.36 m	4.75 m	2.50 m	None of these	**2.50 m**
138	Minimum clearance of ODC from OHE for power OFF at 15 kmph	200 mm	100 mm	80 mm	None of these	**100 mm**
139	What is the size of type A drop arm	200 x 300 mm	250 x 350 mm	250 x 300 mm	None of these	**200 x 300 mm**
140	The minimum clearance of ODC , where speed restriction not required	220 mm	250 mm	300 mm	None of these	**250 mm**
141	Short duration maximum vertical clearance	220 mm	100 mm	200 mm	None of these	**200 mm**
142	Long duration maximum horizontal clearance	220 mm	100 mm	250 mm	None of these	**250 mm**
143	Long duration maximum vertical clearance	290 mm	350 mm	250 mm	None of these	**250 mm**
144	Length of G jumper	3.5 mtr	3.8m	4.0m	None of these	**4.0m**
145	Min. clearance of OHE for passing ODC with power ON at 15 KMPH	300 mm	250 mm	200 mm	None of these	**200 mm**
146	Minimum vertical clearance from OHE to earthed structure for short duration	380 mm	320 mm	220 mm	None of these	**None of these**
147	Distance of G jumper from obligatory mast	4.0 M	5.2 M	5.6 M	None of these	**5.6 M**
148	The span length chosen in multiple of	4.5 m	4.6 m	4.7 m	None of these	**4.5 m**
149	Minimum implantation of obligatory mast	4.65 m	3.00 m	4.98 m	None of these	**3.00 m**
150	Normal implantation at P.F	4.65 m	4.75 m	4.98 m	None of these	**4.75 m**
151	The length of conventional neutral section is	41.5 M	41.0 M	40.0 M	None of these	**41.0 M**
152	Max. tension length of unregulated OHE	1.6 kms	1.7 kms	1.8 kms	2 kms	**2 kms**
153	Length of F-jumper	1.7 mtr	1.8 mtr	1.9 mtr	None of these	**1.7 mtr**
154	Normal encumbrance for 72 m span	1.8 m	1.5 m	1.4 m	None of these	**1.4 m**
155	Dia of new contact wire	10.34 mm	15.5 mm	12.24 mm	None of these	**12.24 mm**
156	At T/O obligatory mast, location M/L OHE should be below T/O OHE by	100 mm	70 mm	60 mm	50 mm	**50 mm**
157	Normal tension in Kg. of Catenary wire	1000 kg	1111 kg	1001 kg	None of these	**1000 kg**
158	Cross section area of large jumper wire	103 sq mm	107 sq mm	105 sq mm	None of these	**105 sq mm**
159	Cross section area of contact wire	106 sq mm	109 sq mm	110 sq mm	107 sq mm	**107 sq mm**
160	Min. clearance bet. Two OHEs at un insulated overlap	150 mm	200 mm	350 mm	None of these	**200 mm**
161	Maximum tension length for regulated OHE	1500 m	1400 m	1200 m	None of these	**1500 m**
162	No. of strands of catenary wire	19	17	21	None of these	**19**
163	No. of strands of small jumper wire	19	35	20	None of these	**19**
164	Distance of A dropper from support	2.35 mtr	2.15 mtr	2.45 mtr	2.25 mtr	**2.25 mtr**
165	Normal implantation of obligatory mast at turn	2.50 M	3.0 M	3.5 M	None of these	**3.0 M**
166	Discharge Rod cable to be replaced if %age of strands broken exceeds	20%	10%	5%	None of these	**20%**
167	On curved track, stagger of cont. wire is	200 mm	250 mm	300 mm	None of these	**300 mm**
168	At insulated over lap, the horizontal gap between two OHE is	200 mm	300 mm	400 mm	500 mm	**500 mm**
169	Minimum working clearance from live OHE	3 Mtrs	2 Mtrs	1.5 Mtrs	None of these	**2 Mtrs**
170	Distance bet. Male & female contact of isolator	300 mm	420 mm	480 mm	500 mm	**500 mm**
171	Dia of adjustable dropper of SI	4 mm	7 mm	5 mm	None of these	**5 mm**
172	Minimum height of contact wire at level	4.5 m	6.0 m	5.50 m	None of these	**5.50 m**
173	The height gauge erected at level crossing with clear height above road level	4.70 Mtrs	4.80 Mtrs	4.67 Mtrs	None of these	**4.67 Mtrs**
174	The maximum distance between runners of section insulator	460 mm	560 mm	440 mm	None of these	**460 mm**
175	Dia. of small dropper	5 mm	4.0 mm	4.5 mm	None of these	**5 mm**
176	The min. height of contact wire at loco inspection pit	5.8 M	5.6 M	5.55 M	None of these	**5.8 M**
177	Cross section area of catenary wire	67 sq mm	54.5 sq mm	62 sq mm	65 sq mm	**65 sq mm**
178	Tension in the conductors is taken by	Tirfor	Union screw	Either (a) or (b)	Dynamometer	**Either (a) or (b)**
179	What is the C jumper PG clamp ID number?	1030	1040	1070	1080	**1040**
180	What is the F jumper PG clamp ID number?	1030	1040	1070	1080	**1040**
181	What is the G jumper PG clamp ID number?	1030	1040	1070	1080	**1030**
182	Name the test that is done on ST, BT & 9Ton insulators prior to their use.	Load test	IR test	PI test	No test	**Load test**
183	Long Creepage distance is –	2000mm	1000mm	1050mm	760mm	**1050mm**
184	The Caution Board that must be displayed	Caution 25000 volts.	DJ opens board	Lower Panto	Danger Men working.	**Caution 25000 volts.**
185	Caution Board applicable at Dead-End OHE	Caution OHE ahead is alive.	Restricted Clearance.	Electric Engine Stop	Unwired Turn-Out.	**Electric Engine Stop**
186	The elementary section supply is controlle	CB	BM	Hand operated off load switch.	BX	**Hand operated off load switch.**
187	Which schedule maintenance has a periodicity of four years.?	AOH	IOH	POH	None of the above.	**POH**
188	Length of 9-ton insulator is	500 mm	525 mm	542 mm	420 mm	**542 mm**
189	Length of stay tube insulator is	500 mm	525 mm	542 mm	420 mm	**525 mm**
190	Length of bracket tube insulator is	500 mm	525 mm	550 mm	420 mm	**500 mm**
191	Length of pedestal insulator is	500 mm	525 mm	550 mm	420 mm	**420 mm**
192	Length of tie rod insulator is	500 mm	550 mm	500 mm	420 mm	**550 mm**
193	Length of sectioning insulator is	500mm	525mm	500mm	420mm	**500mm**
194	What do you understand by the low voltage ?	Upto 110 volt	Upto 150 volt	Upto 200 volt	Upto 250 volt	**Upto 250 volt**
195	What do you understand by the medium voltage ?	Above 250 volt to 440 volt	Above 250 volt to 650 volt	Above 250 volt to 750 volt	Above 250 volt to 900 volt	**Above 250 volt to 650 volt**
196	What do you understand by the high voltage ?	Above 650 volt to 2.2	Above 650 volt to 11	Above 650 volt to 22	Above 650 volt to 33	**Above 650 volt to 33 kV**
197	What do you understand by the extra high voltage (EHV) ?	Above 132 kV	Above 66 kV	Above 110 kV	Above 33 kV	**Above 33 kV**
198	on preventive measures to reduce the incidence of insulator flashover. In non polluted zone 'A', the periodicity of	Cleaning not require	Along with AOH	Twice a year, once with AOH	Thrice in a year	**Along with AOH**
199	on preventive measures to reduce the incidence of insulator flashover. In light polluted zone 'B', the periodicity of	Cleaning not require	Along with AOH	Twice a year (along with AOH & before monsoon)	Thrice in a year	**Twice a year (along with AOH & before monsoon)**
200	Diameter of new 107sq mm wire is	16.36mm	12.24mm	10.55mm	8.25mm	**12.24mm**
201	Condemning size of 107sq mm wire on main	8.93mm	8.34mm	8.25mm	8.89mm	**8.25mm**
202	Cross section area of CONTACT wire is	193sq mm	158sq mm	107sq mm	97sq mm	**107sq mm**

203	Cadmium copper is used in place of hard drawn copper for AC catenary wire, why?	To increase tensile strength of catenary	To reduce the weight of catenary	To increases current carrying capacity	None of above	**To increase tensile strength of catenary**
204	What is the normal spacing between droppers?	6.75m	2.25m	9m	None of above	**9m**
205	The displacement of contact wire with respect to the pantograph axis is called	Implantation	Stagger of contact wire	Gradient of contact wire	Sag	**Stagger of contact wire**
206	In AC traction, maximum stagger of contact wire on curved track is	380mm	300mm	229mm	200mm	**300mm**
207	In AC traction, maximum stagger of contact wire on tangent track is	380mm	300mm	229mm	200mm	**200mm**
208	Contact wire is placed in zig- zag manner in entire span length , why ?	To avoid formation of groove on pantopan strip	Uniform rubbing of pantopan strip within current collection zone	To avoid breakdown due to formation of groove in pantopan	All of the above	**All of the above**
209	Which factor affects the stagger of contact wire	Blow-off	Versine	Track slewing	All of the above	**All of the above**
210	Expand PTW?	Permit to Wait	Permit to work	Proceed to Work	both a and b	**Permit to work**
211	How much is the axel load of Mark IV Tower	2 Tones	10 Tones	16 Tones	14 Tones	**16 Tones**
212	How much is the axel load of DHTC Tower car?	20 Tones	15 Tones	18 Tones	16 Tones	**20 Tones**
213	How much is the axel load of DETC Tower car?	18 Tones	16 Tones	20 Tones	15 Tones	**18 Tones**
214	Operating speed of DHTC?	100 Kmph	110 Kmph	72 Kmph	120 Kmph	**110 Kmph**
215	What is the installed power of Mark III Tower car?	212 HP @2100 rpm	200 HP @1500 rpm	110 HP @ 1800 rpm	212 HP @ 1500 rpm	**212 HP @2100 rpm**
216	What is the installed power of Mark II Tower	72 HP	63 HP	94 HP	83 HP	**83 HP**
217	What is the installed power of Mark IV Tower	110 BHP	260 BHP	230 BHP	240 BHP	**230 BHP**
218	What is the installed power of DETC Tower	500 HP	700 HP	600 HP	720 HP	**700 HP**
219	What is the installed power of DHTC Tower	2x285 HP	3x285 HP	2x318 HP	3x318 HP	**2x285 HP**
220	Pay load of 4 Wheeler Mark II Tower car is?	3 Tones	5 Tones	4 Tones	2 Tones	**3 Tones**
221	Expand RCFF?	Rectifier Cooling Fuse Failure	Rectifier Cooling Fan Failure	Both A and B	None of the abov	**Rectifier Cooling Fan Failure**
222	Expand BPCG?	Brake pressure control governor	Brake power control governor	Brake pipe control governor	Brake power control generator	**Brake pressure control governor**
223	Expand ECP?	Engine Control Panel	Extended Control Panel	Engine Cooling Pad	Extended Cooling Pad	**Engine Control Panel**
224	Expand FRP?	Flexible reinforced plastic	Fiber reinforced plastic	Fabricated reinforced plastic	Ferrous reinforced plastic	**Fiber reinforced plastic**
225	Expand GRCO?	Group Relay cutout switch	Governor Relay cutout switch	Ground relay cutout switch	Guards Relay cutout switch	**Ground relay cutout switch**
226	Expand EPABX?	Electronic Private Automatic Branch Exchange	Extended Private Automatic Branch Exchange	External Private Automatic Branch Exchange	Electrical Private Automatic Branch Exchange	**Extended Private Automatic Branch Exchange**
227	Expand VPR?	Vertical Propulsion Relay	Valve Propulsion Relay	Vehicle Propulsion Relay	Velocity Propulsion Relay	**Vehicle Propulsion Relay**
228	Expand TOT?	Terminal oil Temperature	Torsion oil Temperature	Transformer oil Temperature	Transmission oil Temperature	**Transmission oil Temperature**
229	Expand TIG welding?	Tungsten invert gas welding	Through Inject Gas welding	Tungsten inert gas welding	Tungsten inject gas welding	**Tungsten inert gas welding**
230	MPU	Magnetic Pick up	Main Pick up	Manual Pick up	Moving Pick up	**Magnetic Pick up**
231	TIG	Tungsten invert gas	Through Inject Gas	Tungsten inert gas	Tungsten inject gas	**Tungsten inert gas**
232	MCS	Motor Cut out Switch	Motor Control Swit	Machine Control Switch	Modified Cut out Switch	**Motor Cut out Switch**
233	MOLR	Motor Overload Relay	Main Overload Rela	Magnetic Overload Relay	Master Overload Relay	**Motor Overload Relay**
234	PBS	Push Button solenoid	Pilot Break solenoi	Parking Break solenoid	Pressure Break solenoid	**Parking Break solenoid**
235	EER	Electrical Engine Raise	Emergency Engine Raise	Emergency Exhaust Relay	Emergency Earth Raise	**Emergency Engine Raise**
236	EES	Electric Engine Stop	Emergency Engine Safety	Emergency Engine Stop	Electric Emergency Sensing	**Emergency Engine Stop**
237	EPG	Exhaust Pressure Governor	Emergency Pressure Gas	Electric Pipe Governor	Exhaust Particular Gas	**Exhaust Pressure Governor**
238	What is the purpose of Crank Shaft in Diesel engine?	Converts Circular Motion into Linear Motion	Converts Linear Motion into Rotary Motion	Converts Rotary Motion into Circular Motion	Converts Mechanical Motion into Electrical Motion	**Converts Linear Motion into Rotary Motion**
239	What is the purpose of Power rectifier in DETC Tower car?	For supplying the load on the Tower Car	Battery Charging	To Rectify 3 Phase variable voltage, variable frequency alternator output voltage into smooth DC voltage.	For cooling the temperature	**To Rectify 3 Phase variable voltage, variable frequency alternator output voltage into smooth DC voltage.**
240	What is the frequency of Tower car B check?	Every day	300 Hrs or 6 Months whichever is earlier	1500 Hrs or 1Year whichever is earlier	6000 Hrs or 2 years whichever is earlier	**300 Hrs or 6 Months whichever is earlier**
241	What is the frequency of Tower car C check?	Every day	300 Hrs or 6 Months whichever is earlier	1500 Hrs or 1Year whichever is earlier	6000 Hrs or 2 years whichever is earlier	**1500 Hrs or 1Year whichever is earlier**
242	What is the frequency of Tower car D check?	Every day	300 Hrs or 6 Months whichever is earlier	1500 Hrs or 1Year whichever is earlier	6000 Hrs or 2 years whichever is earlier	**6000 Hrs or 2 years whichever is earlier**
243	Which Tower car has AC/DC power transmission system?	Mark-II	Mark-III	DHTC	DETC	**DETC**
244	Which Tower car has one powered and one non powered axel?	Mark-III	Mark-IV	DHTC	Both 'a' & 'b'	**Both 'a' & 'b'**
245	Which Tower car has Two powered and Two non powered axels?	Mark-III	Mark-IV	DHTC	both a&b	**DHTC**
246	Which Tower car has all of its axels powered?	Mark-II	Mark-III	DHTC	DETC	**DETC**
247	Operating speed of DETC?	100 Kmph	110 Kmph	90 Kmph	120 Kmph	**100 Kmph**
248	Operating speed of 4 Wheeler Mark II Tower	60 Kmph	100 Kmph	590 Kmph	40 Kmph	**40 Kmph**
249	Operating speed of 4 Wheeler Mark III Tower	100 Kmph	60 Kmph	70 Kmph	80 Kmph	**70 Kmph**
250	Operating speed of 4 Wheeler Mark IV Tower	75 Kmph	100 Kmph	45 Kmph	80 Kmph	**75 Kmph**
251	What is the rating of Battery in DHTC Tower Wagon for starting in AH?	280 AH	290 AH	270 AH	300 AH	**290 AH**
252	How many number of axels are there in Mark III tower car?	4	2	3	5	**2**
253	How many number of axels are there in Mark II tower car?	4	2	3	5	**2**
254	How many speed Notches available in DETC Tower Wagon?	6	5	8	7	**8**
255	How many Traction motors mounted on Driving Power Car in DETC Tower Wagon?	4	6	8	7	**4**

256	What must be the minimum pressure of lube oil of Tower Wagon?	3 KG/cm²	8 KG/cm²	5 KG/cm²	7 KG/cm²	**5 KG/cm²**
257	How many strokes are there in IC engine?	6	4	7	8	**4**
258	What type of cooling system provided in DETC Tower Wagon?	Water cooling with roof mounted radiator with Hydrostatic fan drives	Water Cooling	Water cooling with roof mounted radiator	Air Cooling with Fans	**Water cooling with roof mounted radiator with Hydrostatic**
259	Which type of Tower Wagon has cooling system with Roof Mounted radiator with Hydrostatic fan drives?	DETC	8 wheeler DHTC	Both 'a' and 'b'	Mark-III	**Both 'a' and 'b**
260	How many brake cylinders are there in MARK-III Tower Wagon?	5	4	6	7	**6**
261	What is the maximum allowable water temperature allowed in Tower Wagon?	85°C	95°C	75°C	100°C	**95°C**
262	What is the Relay provided to detect Ground Faults in Power Circuit?	Relay Section	Ground Fault Relay	RCFR	Safety Relay	**Ground Fault Relay**
263	What is the fuel tank capacity of Mark II Tower car in litres?	200	300	800	600	**200**
264	What is the fuel tank capacity of Mark IIITower car?	700 Ltrs	300 Ltrs	400Ltrs	650 Ltrs	**300 Ltrs**
265	What is the fuel tank capacity of DHTC Tower	300 Ltrs	700 Ltrs	400 Ltrs	600 Ltrs	**600 Ltrs**
266	What is the fuel tank capacity of DETC Tower	600 Ltrs	500 Ltrs	1700 Ltrs	650 Ltrs	**1700 Ltrs**
267	Expand EP?	Electro pneumatic	Electro pressure	Both a and b	None of the abov	**Electro pneumatic**
268	Expand IC ENGINE?	Internal combustion engine	Integral Combustion Engine	Internal control engine	Both 'a' & 'b'	**Internal combustion engine**
269	Expand ECR?	Excitation common	Effective control rel	Excitation control relay	None of the above	**Excitation control**
270	Expand DETC?	Diesel Engine Tower Car	Dual Engine Tower Car	Diesel Electronic Tower Car	Diesel Electric Tower Car	**Diesel Electric Tower Car**
271	Expand RFF?	Rectifier Function Fault	Restricted Function Fault	Rectifier fuse failure	both a and c	**Rectifier fuse failur**
272	Expand HWT?	High Water Temperature	High Wind Temperature	High Winding Temperature	None of the abov	**High Water Temperature**
273	*PPM*	Parts per million	Parts per meter	Parts per minutes	parts per micron	**Parts per million**
274	Expand DHTC?	Diesel Hybrid Tower car	Diesel Hydraulic Tower Car	DC Hydraulic Tower Car	Dynamic Hydraulic Tower Car	**Diesel Hydraulic Tower Car**
275	Expand AAF?	Auto Alternator Failure	Auxiliary Alternator Fuse	Auxiliary alternator failure	Auto Alternator Fuse	**Auxiliary alternator failure**
276	Expand AFR?	Air Flow Relay	Auto Flow Relay	Anti Flow Relay	Auxiliary Flow Relay	**Air Flow Relay**
277	Expand BCS?	Battery Control Source	Battery Charging source	Battery charging socket	Battery Control Switch	**Battery charging socket**
278	Expand BIS?	Battery Insulation Switch	Battery isolation fuse switch	Battery initialization Switch	Battery interruption fuse switch	**Battery isolation fuse switch**
279	Expand BM?	Breaker Main	Blower motor	Breaking Motor	Bi polar motor	**Blower motor**
280	Expand COR?	Cut off relay	Cut over relay	Cut out relay	Cut on relay	**Cut out relay**
281	Expand DCS?	Driver command switch	Driver control switc	Driver control socket	Driver command socket	**Driver control switch**
282	*A9* .	Independent Brake Valve	Isolating Breaking Valve	Automatic Brake Valve.	Auxiliary Break Valve	**Automatic Brake Valve**
283	What is the rating of Turret CT on HV side?	330/5A	300/5A	500/5A	250/5A	**330/5A**
284	What is the rating of Turret CT on LV side?	1800/5A	2000/5A	1600/5A	1500/5A	**1600/5A**
285	What is the rating of SR?	30% of Capacitor bank rating	13% of Capacitor bank rating	50% of Capacitor bank rating	Equal to Capacitor bank rating	**13% of Capacitor bank rating**
286	What is the purpose of Auxiliary transformer at stations?	230V supply to CLS	230V supply to one Light and Fan in ASM	both 'a' & 'b'	None of the above	**both 'a' & 'b'**
287	What is the purpose of 132KV CT in TSS?	132KV side indication	132KV side measurement	132KV side protection	None of the above	**132KV side protection**
288	Overload capacity of Traction power transformer?	50% overload for 15minutes	100% overload for 5minutes	Both 'a' & 'b'	None of the above	**Both 'a' & 'b'**
289	What is the permissible interval of time between two Successive overloads?	1hr	2hrs	3hrs	4hrs	**3hrs**
290	The taps of the tap changer used in traction transformer varies from	+10% To -15% in steps of 5%	+10% To -10% in steps of 5%	+15% To -10% in steps of 5%	+15% To -15% in steps of 5%	**+10% To -15% in steps of 5%**
291	What is the maximum voltage to be maintained at TSS?	27.5 KV	25 KV	27 KV	29 KV	**27.5 KV**
292	What is the minimum voltage to be maintained at SP for effective operation of trains?	16 KV	23.5 KV	25 KV	19 KV	**19 KV**
293	What tests are to be conducted for transformer oil?	Break down voltage (BDV) test	Acidity test	Crackle test	All of the above	**All of the above**
294	Which type of circuit breaker to be used in TSS on 132/220kV side?	SF6	Vacuum	Both 'a' & 'b'	Nitrogen	**SF6**
295	What is the reason for the shedding of active material of positive plates of cell?	Under charging	fully charged	discharged	over charging	**over charging**
296	What are the precautions to be taken after completion of work on equipment?	do not leave any tools or material in the equipment	do not leave any tools or material on the equipment	do not leave equipment covers in condition.	All of the above open	**All of the above**
297	What happens if battery is disconnected when sub-station is in operation?	HV CB trips with CTD	LV CB trips with CTD	Feeder CB trips with CTD	All CBs will trip with CTD	**All CBs will trip with CTD**
298	In AC traction, why track bonding is done upto 1 KM from either side of the FP	Beyond this distance return current goes through RC	Beyond this distance return current disappears into Earth	Beyond this distance return current is not necessary to come upto TSS	All of the above	**All of the above**
299	What do you mean the term “general mass of the earth” ?	Whose reference potential is less than from system voltage	Whose reference potential is more than from system voltage	Whose reference potential is equal to the system voltage	Whose reference potential is zero	**Whose reference potential is zero**
300	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	Voltage gradient	Current gradient	Resistance gradient	All of the above	**Voltage gradient**

301	What do you mean by the term 'potential or voltage gradient' in earthing system ?	Voltage drop between live & earth electrode	Voltage drop between live & non current carrying parts of the system	Voltage drop between earth electrode & surrounding soil	Voltage drop between two points on the earth surface around the earth electrode	**Voltage drop between two points on the earth surface around the earth electrode**
302	Moisture contents in the soils should not be less than (in the term of equivalent weight of the soil)	10%	20%	30%	40%	**20%**
303	If earth resistance is still showing high values after providing water, coke & salt. How you solve the problem?	Removed earth connection	Additional earthing in series	Additional earthing in parallel, whose earth resistance area should be in same zone	Additional earthing in parallel, whose earth resistance area should be in separate zone	**Additional earthing in parallel, whose earth resistance area should be in separate zone**
304	What is the HV-LV polarization index value of transformer?	R60 / R10	R600/R60	R6000/R600	Both 'a' & 'b'	**Both 'a' & 'b'**
305	Voltage rating of LA is given by the formula?	1.1 x 0.8 x line to line voltage	1.2 x 0.9 x line to line voltage	1.1 x 0.9 x line to line voltage	1.2 x 0.8 x line to line voltage	**1.1 x 0.8 x line to line voltage**
306	The distance of OHE section, for which "a traction transformer will feed power in emergent condition is called	Feeding length	Feeding zone	Sector	Sub sector	**Feeding length**
307	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	**Handed over a caution order to driver for lower the panto before approaching insulated overlap at FP**
308	Inhibitor content of new transformer oil should be	0.2 to 03%	0.4 to 0.5%	0.6 to 1.0%	None of these	**0.2 to 03%**
309	The minimum IR value of Power transformer at 30 degree Celsius between HV - E	2000 M ohm	2100 M ohm	2050 M ohm	None of these	**2000 M ohm**
310	The minimum IR value of Power transformer at 30 degree Celsius between LV -	450 M ohm	400 M ohm	500 M ohm	None of these	**400 M ohm**
311	The minimum IR value of Power transformer at 30 degree Celsius between HV -LV	2550 M ohm	2400 M ohm	2500 M ohm	None of these	**2500 M ohm**
312	SCL current for LV side 20 MVA transformer	5800 Amp	5660 Amp	5600 Amp	None of these	**5800 Amp**
313	Maximum value of Tan delta of transformer bushing	0.008	0.017	0.007	None of these	**0.007**
314	Acidity of transformer oil should be less than	0.5 mg KOH/gm	0.3 mg KOH/gm	0.2 mg KOH/gm	None of these	**0.5 mg KOH/gm**
315	Flash point of transformer oil	>120	>130	>140	>145	**>140**
316	Transformer oil Iin service shall be tested as per specification	IS:335	IS:1866	IS:445	None of these	**IS:1866**
317	New transformer oil shall be tested as per specification	IS:335	IS:1866	IS:445	None of these	**IS:335**
318	Maximum allowable water content in transformer oil	25ppm	35 ppm	40ppm	45ppm	**35 ppm**
319	Maximum increase in magnetizing current is permitted	10 times of initial value	50 times of initial value	60 times of initial value	None of these	**50 times of initial value**
320	Polarization index (PI) by the IR ratio of R60/R10 and R600/ R60 is less than one then insulation	dangerous	poor	good	None of these	**dangerous**
321	Polarization index (PI) by the IR ratio of R60/R10 and R600/ R60 is less than 1 to 1.1 then insulation	dangerous	poor	good	None of these	**poor**
322	Polarization index (PI)by the IR ratio of R60/R10 and R600/ R60 is less than 1.1 to 1.25 then insulation condition is	dangerous	Questionable	good	None of these	**Questionable**
323	Polarization index (PI) by the IR ratio of R60/R10 and R600/ R60 is less than 1.25 to 2.00 then insulation	dangerous	satisfactory	good	None of these	**satisfactory**
324	If the PI value is less than 1.1, transformer oil should be	replace	POH	filtered	None of these	**filtered**
325	The maximum allowable capacitance of transformer bushing	10 % of factory value	150 % of factory value	110 % of factory value	None of these	**110 % of factory value**
326	Minimum value of IR of AT between HV & Earth	250 M ohm	200 M ohm	300 M ohm	None of these	**200 M ohm**
327	Minimum value of IR of AT between LV & Earth	1 M ohm	3 M ohm	4M ohm	2 M ohm	**1 M ohm**
328	Minimum value of IR of AT between LV & HV	200 M ohm	300 M ohm	270 M ohm	None of these	**200 M ohm**
329	Out of the following, what is not the type of operating mechanism of a CB or BM?	Air open/ Air Close	Spring open / spring close	Air open / spring close.	ONAN / ONAF	**ONAN / ONAF**
330	In a 25KV CB/BM air pressure is maintained by ----------	Compressor	Air pressure limit switch	Safety valve	TPC	**Air pressure limit switch**
331	Megger value for 198KV LA should be?	2500MΩ	1GΩ	10GΩ	200KΩ	**10GΩ**
332	Megger value for 42KV LA should be?	2500MΩ	1GΩ	10GΩ	200KΩ	**1GΩ**
333	Cable size of Discharge rod used in 25 KV OHE is -	Multi core 40 sq.mm.	Single core 40 sq.mm.	Multi core 20 sq.mm.	Single core 20 sq.mm.	**Single core 40 sq.mm.**
334	What is the purpose of 100KVA AT at TSS?	230V supply for Oil filter plant	230V supply for lights and fans	230V supply for heaters & battery	All of the above	**All of the above**
335	What is the purpose of CTD?	Trip the CB if 230V AC fails	Trip the CB if 110V DC is Low	Trip the CB if 110V DC fails	Trip the CB if 230V AC is	**Trip the CB if 110V DC fails**
336	What is the purpose of conservator tank for a transformer?	Keeps main tank full	energy conservation	Both 'a' & 'b'	None of the above	**Keeps main tank full**
337	What is the purpose of PRD?	to detect evolution of gas	to protect the main tank from breakage	Both 'a' & 'b'	None of the above	**to protect the main tank from breakage**
338	What is the purpose of OTI?	Oil temperature indication	transformer protection	Both 'a' & 'b'	None of the above	**Both 'a' & 'b'**
339	What is the purpose of WTI?	Winding temperature indication	transformer protection	Both 'a' & 'b'	None of the above	**Both 'a' & 'b'**

340	What is the purpose of arcing horns provided to power transformer?	Protection against Lightning	Over voltage protection	Both 'a' & 'b'	None of the above	**Protection against Lightning**
341	What is the purpose of 25KV CB on LV side of power transformer?	Overload protection	control the output supply	Both 'a' & 'b'	None of the above	**Both 'a' & 'b'**
342	What is the purpose of Type-II PT in feeder Bay?	Protection	measurements	Both 'a' & 'b'	None of the above	**Both 'a' & 'b'**
343	What is the purpose of Type-I PT?	Protection	measurements	Catenary indication	None of the above	**Catenary indication**
344	What is the purpose of SR?	To limit the	to limit switching	Both 'a' & 'b'	None of the	**Both 'a' & 'b'**
345	Equipment used to identify the loose joints?	Screw gauge	vernier Calliperse	Torque wrench	Thermo vision camera	**Thermo vision camera**
346	What type of tap changers are used in traction transformer ?	On-load	off-load	Both 'a' & 'b'	None of the above	**off-load**
347	Number of taps available in tap changer used for traction transformer are	2	4	5	6	**6**
348	What is the specific gravity of electrolyte to be maintained for batteries?	1.000 at 27°C	1.210 at 27°C.	1.300 at 27°C.	1.400 at 27°C	**1.210 at 27°C.**
349	What is the specific gravity of electrolyte when cell is fully discharged	1.15	1.21	1.3	1.4	**1.15**
350	What type of electrolyte used in lead acid batteries?	H_2SO_4	Dilute H_2SO_4	Dilute H_3SO_4	Dilute H_4SO_4	**Dilute H_2SO_4**
351	Prolonged charging at very low speed is called?	Under charging	full charging	trickle charging	Over charging	**trickle charging**
352	What is the cell voltage to be maintained to increase battery life?	2.15V	2.00V	2.10V	2.20V	**2.15V**
353	What is the rating of drop out fuse of ATs provided at Station?	4A	3A	2A	1A	**1A**
354	What is the maximum value of combined earth resistance of AT, BT?	9 ohm	10 ohm	5 ohm	2.5 ohm	**10 ohm**
355	What is the maximum value of combined earth resistance of SP, SSP?	5 ohm	2 ohm	1 ohm	0.5 ohm	**2 ohm**
356	What is the maximum value of	5 ohm	2 ohm	1 ohm	0.5 ohm	**0.5 ohm**
357	What is the maximum value of combined earth resistance of LC Gates?	9 ohm	10 ohm	5 ohm	2.5 ohm	**10 ohm**
358	What is the maximum value of combined earth resistance of PTFE Neutral Section?	9 ohm	10 ohm	5 ohm	2.5 ohm	**10 ohm**
359	What is the size of bus bar arrangement used in TSS for a 21.6MVA transformer?	40mm	50mm	60mm	70mm	**50mm**
360	What are the min & max clearances of SPI in open condition?	38cm – 50cm	38cm – 55cm	35cm – 50cm	50cm – 55cm	**38cm – 50cm**
361	What is the gap of spheres to test BDV of transformer oil?	2.0mm	2.2mm	2.3mm	2.5mm	**2.5mm**
362	What is the gap of arcing horns of power transformers on HV side and LV side?	760mm, 270mm	760cm, 270cm	770mm, 260mm	770cm, 260cm	**760mm, 270mm**
363	What is the cross section of MS flat used for earthing of secondary terminal of traction transformer?	50 x 8 mm	40 x 6 mm	65 x 6 mm	75 x 8 mm	**75 x 8 mm**
364	What is the dia 25KV bus bar of 12.5 MVA transformer TSS?	38/26mm	36/28mm	42/38mm	38/28mm	**36/28mm**
365	What is the impedance of OHE / TKM in double line without RC?	0.24 ohms/KM	0.41 ohms/KM	0.18 ohms/KM	0.17 ohms/KM	**0.24 ohms/KM**
366	What is the maximum current on secondary side of 10KVA AT?	30A	60A	50A	43.5A	**43.5A**
367	Which type of circuit breaker to be used in TSS on 25 kV side?	SF6	Vacuum	Both 'a' & 'b'	Nitrogen	**Both 'a' & 'b'**
368	Type of motor used in 132KV or LVCB mechanism box is?	230V AC	72V DC	110V AC	110V D.C	**110V D.C**
369	Tap changer is connected to which winding of power transformer?	LV side	HV side	both a&b	No tap changer is provided	**LV side**
370	What will be the OHE impedance for single track without return conductor ?	0.24 ohms/KM	0.41 ohms/KM	0.18 ohms/KM	0.17 ohms/KM	**0.41 ohms/KM**
371	What will be the OHE impedance for triple track without return conductor ?	0.24 ohms/KM	0.41 ohms/KM	0.18 ohms/KM	0.17 ohms/KM	**0.18 ohms/KM**
372	Excessive voltage due to surge is bypassed by lightning arrester into	Atmosphere in the form of electromagnetic energy	Atmosphere in the form of electro static energy	Earth	All of the above	**Earth**
373	The voltage of new cell after fully charging	2.3 V	2.5 V	2.6 V	None of these	**2.5 V**
374	Min. height of 25 kV bus bar from ground level at TSS	3.8 M	4 M	3.5 M	None of these	**3.8 M**
375	50% Overload of main Traction transformer is permitted for a period of	30 Minutes	15 Minutes	5 Minutes	None of these	**15 Minutes**
376	POH of transformer is to be carried out after every	5 years	7 years	10 years	None of these	**10 years**
377	The rating of LV fuse provided at 10 kVA AT is	60 amp	63 amp	65 amp	None of these	**63 amp**
378	Primary current of 10 KVA AT is	1 amp	0.2 amp	0.4 amp	None of these	**0.4 amp**
379	Secondary current of 10 KVA AT is	32 amp	41.6 amp	21.6 amp	None of these	**41.6 amp**
380	Primary current of 100 KVA AT is	4 amp	6 amp	8 amp	None of these	**4 amp**
381	Secondary current of 100 KVA AT is	350 amp	376 amp	416 amp	None of these	**416 amp**
382	The paint provided in battery room floor should be	Anti hydrochloric acid	Anti sulphuric Acid	PVC	None of these	**None of these**
383	The paint provided in battery room Wall upto 2 mtr from floor should be	Anti hydrochloric acid	PVC	Anti sulphuric Acid	None of these	**Anti sulphuric Acid**
384	The setting of 25 kV CB for gas pressure trip is	4.4 kg/cm2	5.0 kg/cm2	4.0 kg/cm2	None of these	**4.0 kg/cm2**

385	Expand BX?	Bus coupler interruptor	Bus crossing interruptor	Bus cutting interruptor	Bus contact interruptor	**Bus coupler interruptor**
386	Expand BC?	Bus contact isolator	Bus coupler isolator	Bus cutting isolator	Bus crossing isolato	**Bus coupler isolator**
387	Expand CB?	Circuit Breaker	Circuit Banker	Capacitor breaker	Circuit blocker	**Circuit Breaker**
388	Expand TR?	Track Resistance	Traction power transformer	Train Resistance	Time Relay	**Traction power transformer**
389	Expand PT?	Power Transformer	Protection Transformer	Potential Transformer	Power Transducer	**Potential Transformer**
390	Expand CT?	Current Transformer	Capacitor Transformer	Current tester	Continuity tester	**Current Transformer**
391	Expand LA?	Lightning Arrester	Lightning Attracter	Lightning Allower	Lightning Absorber	**Lightning Arrester**
392	Expand SR?	Series Rectifier	Series Reactor	Series Resistor	Series Rheostat	**Series Reactor**
393	Expand NCT?	Natural current transformer	Negative current transformer	Neutral current transformer	Noncurrent transformer	**Neutral current transformer**
394	Expand HRC?	High Return Current	High Rate of Current	High Rupturing Capacity	High Rupturing Current	**High Rupturing Capacity**
395	Expand DO fuse?	Drop Off fuse	Drop Over fuse	Drop Out off fuse	Drop out fuse	**Drop out fuse**
396	Expand TSS?	Terminal Sub-station	Traction Sub-section	Traction Sub-station	Terminal Sub-section	**Traction Sub-station**
397	Expand SP?	Sectioning and Paralleling Post	Sectioning Post	Section Post	Sub-Sector Post	**Sectioning and Paralleling Post**
398	Expand SSP?	Sub-Sectioning and Paralleling Post	Sub-Sectioning Post	Sub-Section Post	Sub-Sector Post	**Sub-Sectioning and Paralleling Post**
399	Expand FP?	Front Post	Feeding Post	Feeder Post	Front Post	**Feeding Post**
400	Expand LR switch?	Low Resistance Switch	Local Remote Switch	Lockout Release Switch	Local Release Switch	**Local Remote Switch**
401	Expand IR value?	Insulation Resistance value	Internal Resistance value	Inter Resistance value	Insulation Reactance value	**Insulation Resistance value**
402	Expand PI value?	Polarity Index value	Progressive Index value	Proportionate Index value	Polarization Index value	**Polarization Index value**
403	Expand MD?	More demand	Maximum	Multi demand	Marginal	**Maximum Demand**
404	Expand CMD?	Contract Maximum Demand	Constant Maximum Demand	Cumulative Maximum Demand	Continuous Maximum Demand	**Contract Maximum Demand**
405	Expand PF?	Potential factor	Production factor	Phase factor	Power factor	**Power factor**
406	Expand TNC switch?	Trip neutral close	Train notch Control	Train Nano Control	Trip normal Control	**Trip neutral close**
407	Expand EHV?	Existing high voltage	Extra higher voltage	Extra half voltage	Extra High Voltage	**Extra High Voltage**
408	Competency certificate for Relay testing staff?	TR/01	TR/05	TR/06	TR/07	**TR/07**
409	What are the maintenance schedules for power transformer?	Monthly	Half yearly	yearly and POH.	All of the above	**All of the above**
410	What are the maintenance schedules for SF6 CB?	Quarterly	Half yearly	yearly	All of the above	**All of the above**
411	What are the maintenance schedules for Battery?	Monthly	yearly	Quarterly	Both 'a' & 'b'	**Both 'a' & 'b'**
412	What are the maintenance schedules for Cable trench?	Monthly	yearly	Quarterly	Both 'a' & 'b'	**Quarterly**
413	IR value of LA is measured by	3.5 kV megger	2.8 kV megger	2.5 kV megger	None of these	**2.5 kV megger**
414	Capacitor bank is used for	current	Power factor improvement	Voltage	None of these	**Power factor improvement**
415	Power transformer used at TSS are	Step down	Step up	both type	None of these	**Step down**
416	Cooling fans are used in transformer for increasing	Voltage	Current	capacity	None of these	**capacity**
417	Depth of buried rail at TSS	2 mtr	0.5 mtr	1 mtr	None of these	**1 mtr**
418	Voltage rating of megger for measuring IR value of main transformer	2.5 kV	1.5 kV	0.5 kV	None of these	**2.5 kV**
419	No. of taps provided in power transformer	5 nos.	3 nos.	6 nos.	None of these	**6 nos.**
420	The traction load is type of	Double phase	single phase	Three phase	None of these	**single phase**
421	Generally kVA rating of AT provided at station	50	110	15	10	**10**
422	In which battery post corrosion is usually observed	both battery	Conventional battery	VRLA battery	None of these	**Conventional battery**
423	The protection used in TSS	OHE protection	Transformer protection	Both protection	None of these	**Both protection**
424	NCT is used for protection of	Capacitor bank	Transformer	OHE	None of these	**Capacitor bank**
425	Schedule of relay testing is	Half Yearly	yearly	Monthly	None of these	**yearly**
426	DC supply required for operating of relay in TSS	110 V	100 V	115 V	None of these	**110 V**
427	There should be continuity between moving contact and fixed contact when CB closed is	NO	YES	BOTH	None of these	**YES**
428	Size of MS flat connected to secondary of PT to earth	55mm x 8 mm	60mm x 5 mm	50mm x 6 mm	None of these	**50mm x 6 mm**
429	Size of MS flat connected to secondary of AT to earth	55mm x 8 mm	60mm x 5 mm	80mm x 5 mm	50mm x 6 mm	**50mm x 6 mm**
430	The Max. permissible combined earth resistance at TSS	0.25 Ohm	0.5 Ohm	1 Ohm	None of these	**0.5 Ohm**
431	Max. permissible combined earth resistance at a switching station (SP/SSP)	0.5 Ohm	1 Ohm	2 Ohm	None of these	**2 Ohm**
432	VA capacity of type I PT is	100 VA	75 VA	50 VA	30 VA	**30 VA**
433	The electrode gap of oil test for BDV	2.0 mm	2.5 mm	4.0 mm	None of these	**2.5 mm**
434	Magnetic poles are generally known as	North- South	East- West	EMF- MMF	UP-DOWN	**North- South**
435	TR-5 Competency Certificate is given to –	OHE Lines Man	PSI fitter	RC artisan	PSI Supervisor.	**PSI fitter**
436	Maximum Permissible distance between two discharge rods is?	1 metre	10 metres	100 metres	1000 metres	**1000 metres**
437	What is the use of transformer oil?	Insulation	Cooling	Both 'a' & 'b'	None of these	**Both 'a' & 'b'**
438	Transformer oil is categorised as?	Edible oil	Fuel	Insulating oil	None of the above	**Insulating oil**

439	What is used for cooling of a transformer?	Conservator tank	Radiator	Breather	Core	**Radiator**
440	Bushing CT is associated with?	Power Transformer	AT- 100KVA	AT at SP	Feeder CB	**Power Transformer**
441	Location of PRD?	Behind control panel	below marshaling box	Above bell tank	beside conservator tank.	**Above bell tank**
442	Expand FSK?	Frequently shift Keying	Frequency Shift Keying	Front Shift Keying	Fifth Shift Keying	**Frequency Shift Keying**
443	Expand MOV?	Metal Oxide Vibrator	Multi Orientation Valve	Mould Oxide Varistor	Metal Oxide Varistor	**Metal Oxide Varistor**
444	What is the name of the equipment used to convert	Transducer	Modem	Digital Meter	All of the above.	**Modem**
445	What is the name of the equipment to convert the	Oscillator	Transformer	Transducer	None of the above	**Transducer**
446	How many AI card are provided at SSP RTU?	4	1	2	NIL	**NIL**
447	How many types of input interface cards are available in logic chassis of SCADA?	2	1	4	NILL	**4**
448	What is the communication scheme adopted for MODEMS used for SCADA?	Frequency Shift keying	Amplitude Modulation	Frequency modulation	None of theses	**Frequency Shift keying**
449	What is the transmission capacity of the MODEM used in SCADA?	230 baud	100 baud	600 baud	30 baud	**600 baud**
450	How many Type - I tele signals can be sensed at TSS for relay WPC/DPR/OCR?	2	3	6	1	**6**
451	Which relay recognizes the dead line and live	OCR	Panto flash over relay	WPC	DPR	**Panto flash over relay**
452	How many AI card are provided at SP RTU?	2	3	1	4	**1**
453	What is the voltage level of status and alarm signal of field devices?	230 V	110V	74V	24V	**110V**
454	What is the current rating of a contactor?	15Amps	25 Amps	10 Amps	24 Amps	**10 Amps**
455	How many Tele commands are provided in RTU at	24	48	6	2	**24**
456	How many Tele-Metry signals are available in RTU at TSS?	24	6	12	36	**12**
457	How many Tele signals are available in RTU at TSS?	48	6	96	26	**48**
458	What are telemetry signals?	Voltage and current	110V DC low	230V DC fail	Catenary dead	**Voltage and current**
459	What is the name of the section of power supply unit used to monitor the AC input supply and to change over to battery supply during supply	Supervisory section	Control section	Switching section	Maintaining section	**Supervisory section**
460	What is the reason for adopting Pulse width modulation in the inverter?	To suppress odd harmonics	To suppress even harmonics	To suppress higher order harmonics	To suppress lower order harmonics.	**To suppress lower order harmonics.**
461	What is the purpose of Telemetry signals?	To measure SF6 gas pressure	To measure compressor air pressure	To measure voltage , current and maximum demand.	To measure winding temperatur	**To measure voltage , current and maximum demand.**
462	What is the ratio of PT used for voltage measurement in telemetry of TSS?	25KV/132V	30KV/132V	27.5KV/132V	29KV/132V	**30KV/132V**
463	What is the ratio of PT used for voltage measurement in telemetry of SP?	25KV/132V	27.5KV/132V	30KV/132V	29KV/132V	**30KV/132V**
464	How many tele commands are sensed at RTU of SSP?	9	8	7	6	**8**
465	How many tele signals are sensed at RTU of	12	13	14	15	**12**
466	What is the process of scanning the RTU by	Monitoring	Interacting	Polling	Guiding	**Polling**
467	How many tele signals are sensed at RTU at	24	36	12	48	**48**
468	How many telemetry are sensed at RTU at SSP?	6	12	24	48	**6**
469	How many telemetry are sensed at RTU at SP?	2	4	6	8	**4**
470	How many telecontrol signals are sensed at SP,SSP?	2	4	8	12	**8**
471	What is CPU?	Core Processing Unit	Control Processing Unit	Central Processing Unit	Command Processing	**Central Processing Unit**
472	Expand RCC?	Remote Call centre	Remote Command	Rapid Control Centre	Remote Control Centre	**Remote Control Centre**
473	Expand RC?	Rapid Control	Remote Control	Route Control	Resource Control	**Remote Control**
474	Expand TPC?	Train Power Controller	Traction Phone controller	Traction Power circuit	Traction Power Controller	**Traction Power Controller**
475	Expand SRC?	Supervisory Remote Control	Supervisory Rapid Control	Section Remote Control	Supervisory Remote Controller	**Supervisory Remote Control**
476	Expand RTU?	Remote Telephone Unit	Remote Testing Unit	Remote Terminal Unit	Remote Train Unit	**Remote Terminal Unit**
477	Expand FEP?	Front Execution	Front End Processor	Front End Programmer	Front End Printer	**Front End Processor**
478	Expand CP?	Communication	Central Processor	Control Processor	Communication	**Communication Processor**
479	Expand RAM?	Random Access	Rapid Access Memory	Random Access	Rapid Access Machine	**Random Access Memory**
480	Expand ROM?	Read Once Memory	Read Only Memory	Read Out Memory	Real-time Operating Memory	**Read Only Memory**
481	Expand DO card?	DC Output Card	Discrete Output Card	Digital output card	Dual Output Card	**Digital output card**
482	Expand DI card?	Digital Input Card	DC Input Card	Discrete Input Card	Dual Input Card	**Digital Input Card**
483	Expand AI card?	Auxiliary Input Card	AC Input Card	Arithmetic Input Card	Analog Input card	**Analog Input card**
484	Expand SCADA?	Supervisory Control & Data Acquisition	Supervisory Computer & Data Acquisition	Supervisory Control & Data Analysis	Super Computer & Data Acquisition	**Supervisory Control & Data Acquisition**
485	Expand SMPS?	Switch Main Power Supply	Stable Mode Power Supply	Synchronous Mode Power Supply	Switched Mode Power Supply	**Switched Mode Power Supply**
486	Expand OWS?	Operating Work Section	Operating WorkStation	Operator WorkStation	Operator Work Section	**Operating WorkStation**
487	Expand LAN?	Large Area Network	Limited Area Network	Local Area Network	Located Area Network	**Local Area Network**
488	Expand WAN?	Wrong Area Network	Wider Area Network	Work Area Network	Wide Area Network	**Wide Area Network**
489	Expand MODEM?	Modulator/ Demodulator	Modifier/ Demodefier	Modulating Electronic Machine	Modified Electronic Machine	**Modulator/ Demodulator**
490	Expand MDB?	Mimic Diagram Board	Modernized Diagram Board	Machine Diagram Board	Master Diagram Board	**Mimic Diagram Board**
491	Expand UPS?	Un-interrupted power supply	Uni-phase Supply	Unbalanced Power Supply	Ultra Power Supply	**Un-interrupted power supply**
492	What type of cooling is provided for the power supply unit at RC?	Forced Cooling	Natural air cooling	Oil Cooling	None	**Natural air cooling**
493	What is the coil voltage of a contactor?	230 V	100 V	74 V	24 V	**24 V**

494	How many Contacts are available for CB?	6	8	4	2	**4**
495	Competency certificate for RC supervisor?	TR/09	TR/04	TR/06	TR/08	**TR/09**
496	What is the power supply required to SCADA system?	12V	24 V	110V	230V	**24 V**
497	What is the D.C voltage required to UPS?	110 V	230 V	24V	36V	**110 V**
498	What is meant by digital output(DO)?	Signal which goes out of RCC to RTU	Signal which comes to RCC from RTU	Signal which comes to RTU from other RTU	None of the above	**Signal which goes out of RCC to RTU**
499	What is meant by digital input(DI)?	Signal which goes out of RCC to RTU	Signal which comes to RCC from RTU	Signal which comes to RTU from other RTU	None of the above	**Signal which comes to RCC from RTU**
500	What is meant by Tele signal?	Signals which come from field	Signals which come from RCC	Both 'a' & 'b'	None of the above	**Signals which come from field**
501	What is the purpose of logic chasis?	It is used to control field signals	It is used to process the field signals	Both 'a' & 'b'	None of the above	**Both 'a' & 'b'**