

**QUESTION BANK FOR
JE- SELECTION
UNDER
25% PR QUOTA
SOUTH CENTRAL RAILWAY
SECUNDERABAD DIVISION**

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SECUNDERABAD DIVISION

SYLLABUS FOR PROMOTION AS JE-II IN SCALE Rs.9300-34800+4200(GP) IN TRS
ORGANISATION through LDCE Quota.

PART-A

A) Basics of electricity

- 1) Study of Electricity, Ohms Law, Magnetism, Electromagnetic induction, Flemings R.H. Rule, L.H. Rule, Lenz's Law, self inductance, Mutual inductance, Study of AC circuits i.e., RL, RC, RLC Circuits, Series Resonance, Parallel resonance.
- 2) Study of power factor and the improvement methods demand and economy in installation of electrical energy.
- 3) Measurements of Resistance, current voltage, power study of various types of meters and equipments used, Megger, diode tester, ammeter, Voltmeter etc., uses of shunts, multipliers.

B) DC Generators:

Working principles of D.C. Generators, DC shunt generators, DC series generators and DC compound generators.

C) DC Motors:

Study of DC motors and their performance characteristics and Speed characteristics. DC series motor as traction motor and its suitability for traction applications.

D) Transformers:

Study of Transformers and concept of Mutual induction. Step down, Step Up transformers, Auto transformers, Current transformers and Potential Transformers. Applications of Transformers. Their role in Electricity.

E) Induction Motors:

- 1) Study of 3phase induction motors and their performance characteristics. Their applications, Torque speed characteristics. VFD drives and their application to Induction Motors.
- 2) Study of 3 phase induction motors principle, maintenance and overhauling, study of Induction generator, working principles, study of Arno, Aux, machines of A.C. Loco

F) Transmission and distribution networks:

Study of transmission lines and distribution lines and under-ground cables, study of erecting the lines determination of conductor size and re-cabling of locomotives.

G) Importance of Earthing and Earth testing procedure:

Why earthing is to be done, PIPE earthing, Plate earthing, Maintenance free earthing, Study of Earth testing procedure, insulation test for various equipments and testing of insulators.

H) Electrical Safety and ACTS and Rules.

1. Electricity act and safe rules and Shock treatment, first aid and use of Fire Extinguishers.


I) ELECTRICAL TRD EQUIPMENT and Its BASIC Knowledge:

Electrical OHE and Its arrangement, Traction Substation Layout and its Equipment.

PART-B

A) Conventional Locomotives (WAG-5/7, WAM-4, WAP-4)

1. DC Series Motors as Traction Motors: Study of Characteristics, Armature Reaction and Commutation Improvements for commutation and suitability of D.C. Series Motor for traction duty. Study of Traction Motor used in A.C. Locomotives WAP4 & WAG5/7 Maintenance, repairs, overhaul of Traction motors of Conventional Locomotives.


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2. Study of Conventional Locomotive circuits i.e., Power circuits and control circuits, parameters of A.C. Circuits, Simple calculations, study of power supply arrangements of A.C. traction(Conventional Locomotives).
3. Study of current collection in A.C. Locomotive, study of roof equipments of A.C. Loco.
4. Study of Transformer principle, overhaul and maintenance of Transformers, Auto- Transformers, conditions for parallel operation of transformer, study of transformer used in A.C. Loco WAP4/5 & WAG5/7; Maintenance and overhauling tests to be conducted on the transformer, study of tap changer, operation method for voltage control, Testing of transformer.
5. Study of fuse protectors, switches and isolators, construction and working details of circuit breakers of A.C. Conventional Locos (DL).
6. Study of various types of contractors and relays, study of relays and contractors used in the A.C. Loco, Drum Contactors. Function of blow out coil and arc chutes.
7. Study of batteries, commissioning (initial charging) maintenance and reclamation and battery charging procedures.
8. Study rectification methods, filters, study of Silicon rectifier, smoothening reactor in the Loco study of semi-conductor devices, battery charger.
9. Safe working on the locomotive precautions to be taken, Fire preventive measures in the locomotive and study of fire fighting.
10. Study of circuit, analysis of WAP4 & WAG5/7 Locomotive i.e., study of circuits, cabling Index and other drawings.
11. Study of WAP-4 & WAG5/7 Bogie, wheel arrangements, suspension arrangements and all mechanical features like elements of Vibration, Oscillation, Damping devices, Elasticity etc.
12. Study of Sander gear and Brake rigging, various types of brake systems in Conventional Loco (WAG-7).
13. Study of Pneumatic circuitry of WAP-4 & WAG5/7, Study of various Pneumatic Valves, braking system (E-System).
14. Study of maintenance schedules for various equipment in the Conventional Locomotive, its periodicity.
15. Different lubricants used in WAG 5/7 & WAP 4 locomotives
16. Study of Conventional Locomotive, testing, engine fitness and troubleshooting procedure.
17. RDSO Modification and SMIs implementation and maintenance of various records of Conventional Locomotives.
18. Maintenance of records in PPO
19. Study of new equipments in Loco such as MPCS, SIV, VCD and WMUCS.
20. Study of DJ control Circuit. Study of various branches and trouble shooting of various branches in DJ control circuit of Locos both with SIV fitted Locos and Arno fitted Locos.

B) 3-Phase Locomotives (WAP-7, WAG-9)

1. 3phase induction Motors as Traction Motors: Study of Characteristics, use of 3phase induction motors for traction duty. Study of Traction Motor used in A.C. Locomotives WAP7 & WAG-9 Maintenance, repairs, overhaul of Traction motors of 3Phase Locomotives (WAG-9, WAP-7).
2. Study of 3Phase Locomotive circuits i.e., Power circuits and control circuits, parameters of A.C. Circuits, Simple calculations, study of power supply arrangements of A.C. traction(3phase Locomotives).

- 4
3. Study of current collection in 3Phase Locomotives, study of roof equipments of A.C. Loco.
 4. Study of 3phase Locomotive Transformers, overhaul and maintenance of Transformers, Auto-Transformers, conditions for parallel operation of transformer, Maintenance and overhauling tests to be conducted on the transformer, testing of transformer.
 5. Study of Auxiliary converter circuits and components and Auxiliary power supply and load sharing between BURs during normal condition and during isolation of one BUR.
 6. Study of Transformer cooling circuit and function of TFP MPH.
 7. Study of SR coolant circulation and function of SRMPH.
 8. Machine room layout of 3phase locomotives. Locations of various equipment in Machine room.
 9. Study of various types of contractors and relays, study of relays and contractors used in the 3phase Locomotives.
 10. Study of batteries in 3phase locomotives, commissioning (initial charging), maintenance and reclamation and battery charging procedures.
 11. Safe working on the 3phase locomotive; precautions to be taken, Fire preventive measures in the locomotive and study of fire fighting.
 12. Study of circuit, analysis of WAG-9 Locomotives i.e., study of circuits, cabling Index and other drawings.
 13. Protective functions in three phase locomotive(ABB document 3EHP 541526), working of VCD, Failure mode operation, Inching mode operation, Constant speed control, Traction Interlock, SR Interlock and Indication of faults using BPFA & LSFL
 14. Study of WAG-9 Bogie, wheel arrangements, suspension arrangements and all mechanical features like elements of Vibration, Oscillation, Damping devices, Elasticity i.e., Springs and dampers etc.
 15. Study of Sander gear and Brake rigging, various types of brake systems in 3phase Loco.
 16. Different lubricants used in WAP 7/ WAG9 locomotives
 17. Study of Pneumatic circuitry of WAG-9, Study of various Pneumatic Valves, braking system (E-System).
 18. Study of maintenance schedules for various equipment in the 3phase Locomotive, its periodicity.
 19. Study of 3phase Locomotives, testing, engine fitness and troubleshooting procedure.
 20. RDSO Modification and SMLs implementation and maintenance of various records for 3phase Locomotives.
 21. Study of Electronic devices i.e., IGBT and GTOs as control switches in power circuitry and auxiliary circuitry of 3phase Locomotives.
 22. Study of new equipments in Loco such as CVVRS, Vacuum Toilet, VCD and DPWCS.

PART -C

1. Railway service conduct rules, Pass rules, D&A rules, Hours of employment regulations, payment of wages act, WC act.
2. Procurement of Stores- stocked items and non -stocked items, imprest stores, disposal of unserviceable stores, stock verification and accountal correspondence.
3. Rules and regulations about Official Language i.e., Hindi as Official Language.

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a) Basic Electronics:

(1) The reverse current in a diode is of the order of

Options:[a] kA [b] mA [c] μ A [d] Zero

Answers: 1. Options B and C 2. Option C only 3. Option D only 4. Option A and D only

Ans: 2

(2) The forward voltage drop across a diode is about....

[a] 2.5V [b] 3V [c] 10V [d] 0.7V

Ans: D

(3) A semiconductor diode is used as

Options:[a] An amplifier [b] A Rectifier [c] An oscillator [d] A voltage regulator

Answers: 1. Options A and C 2. Option B only 3. A, B, C and D 4. Option D only

Ans: 2

(4) A semiconductor diode has

[a] One PN junction [b] Two PN junction [c] Three PN junction [d] Four PN junction

Ans: A

(5) A semiconductor diode has forward resistance of order of ohms(Ω)

Options:[a] kohms($K\Omega$) [b] 0.1 to 0.5 ohms [c] Mega ohms [d] milli ohms

Answers: 1. Option D only 2. Option B only 3. Options A, B, C and D 4. None of the above

Ans: 2

(6) If the arrow of diode symbol is positive with respect to bar, then the diode is biased

[a] Forward [b] Reverse [c] Either forward or reverse [d] None of the above

Ans: A

(7) The leakage current in a diode is due to

Options:[a] Minority Carriers [b] Majority Carriers [c] Junction Capacitance [d] None of the above

Answers: 1. Options A, B, C 2. Option B only 3. Options A and B only 4. Option A only

Ans: 4

(8) The DC resistance of a diode is its AC resistance

[a] Same as [b] More than [c] Less than [d] None of the above

Ans: C

(9) An ideal diode is one which behaves as a perfect when forward biased

[a] Conductor [b] Insulator [c] Resistance material [d] None of the above

Ans: A

(10) If the temperature of the diode increases, then leakage current....

[a] Remains same [b] Decreases [c] Increases [d] Becomes zero

Ans: C

B) ELECTRICAL ENGINEERING BASICS OBJECTIVE QUESTIONS WITH ANSWERS

[1] Electrostatics is a branch of electricity concerned with

(a) Energy flowing across a gap between conductors (b) Charges at rest (c) Charges in motion (d) Energy in the form of charges

Answer: B

6

[2] Four 2 F capacitors are connected in series. The equivalent capacitance is

- (a) 8 F (b) 0.5 F (c) 2 F (d) 6 F

Ans: B

[3] State which of the following is false.

The capacitance of a capacitor

- (a) Is proportional to the cross-sectional area of the plates
(b) Is proportional to the distance between the plates
(c) Depends on the number of plates
(d) Is proportional to the relative permittivity of the dielectric

Ans: B

[4] The capacitance of a capacitor is the ratio

- (a) Charge to potential difference between plates
(b) Potential difference-between plates to plate spacing
(c) Potential difference-between plates to thickness of dielectric
(d) Potential difference-between plates to charge

Ans: A

[5] Which of the following statement is false?

- (a) An air capacitor is normally a variable type
(b) A paper capacitor generally has a shorter service life than most other types of capacitor
(c) An electrolytic capacitor must be used only on a.c. supplies
(d) Plastic capacitors generally operate satisfactorily under conditions of high temperature

Ans: A

[6] The potential difference-across a $10\mu\text{F}$ capacitor to charge it with 10mC is

- (a) 10V (b) 1 kV (c) 1V (d) 10V

Ans: B

[7] The energy stored in a 10F capacitor when charged to 500V is

- (a) 1.25 mJ (b) 0.025 J (c) 1.25 J (d) 1.25 C

Ans: C

[8] The capacitance of a variable air capacitor is at maximum when

- (a) The movable plates half overlap the fixed plates
(b) The movable plates are most widely separated from the fixed plates
(c) Both sets of plates are exactly meshed
(d) The movable plates are closer to one side of the fixed plate than to the other

Ans: C

[9] The unit of magnetic flux density is the:

- (a) Weber (b) Weber per metre (c) Ampere per metre (d) Tesla

Ans: D

[10] The charge on a 1pF capacitor when the voltage applied to it is 10 kV is

- (a) 100 C (b) 0.1 C (c) 0.1 C (d) 0.01 C

Ans: C

[11] Four 2 F capacitors are connected in parallel. The equivalent capacitance is

- (a) 8 F (b) 0.5 F (c) 2 F (d) 6 F

Ans: A

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[12] In a series a.c. circuit the voltage across a pure inductance is 12V and the voltage across a pure resistance is 5V. The supply voltage is

- (a) 13V (b) 17V (c) 7V (d) 2.4V

Ans: A

[13] Inductive reactance results in a current that

- (a) Leads the voltage by 90deg (b) Is in phase with the voltage (c) Leads the voltage by 45deg (d) Lags the voltage by 90deg

Ans: D

[14] A 10 Ω resistor is connected in parallel with a 15 Ω resistor and the combination in series with a 12 Ω resistor. The equivalent resistance of the circuit is: (a) 37 Ω (b) 18 Ω (c) 27 Ω (d) 4 Ω

Ans: B

[15] The equivalent resistance when a resistor of $(1/3) \Omega$ is connected in parallel with a $(1/4) \Omega$ resistance is: (a) $1/7 \Omega$ (b) 7 Ω (c) $1/12 \Omega$ (d) $3/4 \Omega$

Ans: A

C) 3 PHASE INDUCTION MOTORS RELATED (MCQ) OBJECTIVE QUESTIONS WITH ANSWERS

[1] Which of the following statements about a three-phase squirrel-cage induction motor are false?

- (a) It has no external electrical connections to its rotor
(b) A three-phase supply is connected to its stator
(c) A magnetic flux which alternates is produced
(d) It is cheap, robust and requires little or no skilled maintenance
(1) A,B,C only (2) C and D only (3) C only (4) None of the above (5) B only

Ans: 3

[2] Which of the following statements about a three-phase induction motor-are-false?

- (a) The speed of rotation of the magnetic field is called the synchronous speed
(b) A three-phase supply connected to the rotor produces a rotating magnetic field
(c) The rotating magnetic field has a constant speed and constant magnitude
(d) It is essentially a constant speed type machine
(1) C only (2) B only (3) A only (4) All of the above (5) A and C only

Ans: 2

[3] Which of the following statements is false when referring to a three-phase induction motor?

- (a) The synchronous speed is half the supply frequency when it has four poles
(b) In a 2-pole machine, the synchronous speed is equal to the supply frequency
(c) If the number of poles is increased, the synchronous speed is reduced
(d) The synchronous speed is inversely proportional to the number of poles
(1) All of the above (2) D only (3) B only (4) None of the above (5) A and C only

Ans: 2

[4] A 4-pole three-phase induction motor has a synchronous speed of 25 rev/s. The frequency of the supply to the stator is:

- (a) 50Hz (b) 100Hz (c) 25 Hz (d) 12.5 Hz

Ans: A

[5] In a three-phase induction motor. Which-of the following-statements are false?

- (a) The slip speed is the synchronous speed minus the rotor speed
(b) As the rotor is loaded, the slip decreases
(c) The frequency of induced rotor e.m.f.s increases with load on the rotor
(d) The torque on the rotor is due to the interaction of magnetic fields
(1) All of the above (2) C only (3) B only (4) A and C only (5) B and D only

Ans: 3

- [6] In a three-phase induction motor. Which-of the following-statements are false?
 (a) If the rotor is running at synchronous speed, there is no torque on the rotor
 (b) If the number of poles on the stator is doubled, the synchronous speed is halved
 (c) At no-load, the rotor speed is very nearly equal to the synchronous speed
 (d) The direction of rotation of the rotor is opposite to the direction of rotation of the magnetic field to give maximum current induced in the rotor bars
 (1) A, B, C (2) C only (3) B only (4) A and C only (5) D only
 Ans:5

- [7] The slip speed of an induction motor may be defined as the:
 (a) Number of pairs of poles frequency (b) Rotor speed - synchronous speed
 (c) Rotor speed + synchronous speed (d) Synchronous speed -- rotor speed
 Ans:D

- [8] The slip speed of an induction motor depends upon:
 (a) Armature current (b) Supply voltage (c) Mechanical load (d) Eddy currents
 Ans:C

- [9] The starting torque of a simple squirrel-cage motor is:
 (a) Low (b) Increases as rotor current rises (c) Decreases as rotor current rises (d) High
 Ans: A

- [10] The slip speed of an induction motor:
 (a) is zero until the rotor moves and then rises slightly
 (b) is 100per cent until the rotor moves and then decreases slightly
 (c) is 100per cent until the rotor moves and then falls to a low value
 (d) is zero until the rotor moves and then rises to 10per cent
 Ans:C

DC Motor & DC Generator

Multiple Choice Questions with Solutions:

- [1] Which of the following statements is false?
 (a) A DC motor converts electrical energy to mechanical energy
 (b) The efficiency of a DC motor is the ratio input power to output power
 (c) A DC generator converts mechanical power to electrical power
 (d) The efficiency of a DC generator is the ratio output power to input power
 Options: 1. C only 2. C and D only 3. B only 4. None of the above
 Ans: 3

- [2] If the speed of a DC machine is doubled and the flux remains constant, the generated e.m.f.
 (a) remains the same (b) is doubled (c) is halved (d) None of the above
 Ans: B

- [3] If the flux per pole of a shunt-wound DC generator is increased, and all other variables are kept the same, the speed
 (a) decreases (b) stays the same (c) increases (d) None of the above
 Ans:A

- [4] Which of the following statements is false?
 (a) A commutator is necessary as part of a-DC-motor to keep the armature rotating in the same direction
 (b) A commutator is necessary as part of a-DC-generator to produce unidirectional voltage at the-terminals of the generator
 (c) The field winding of a-DC-machine is housed in slots on the armature
 (d) The brushes of a-DC-machine are usually made of carbon and do not rotate with the armature
 Options: 1. D only 2. C and D only 3. None of the above 4. C only
 Ans: 4

[5] If the flux per pole of a shunt-wound-DC-generator is halved, the generated e.m.f. at constant speed
(a) is doubled (b) is halved (c) remains the same (d) None of the above

Ans: B

[6] In a series-wound generator running at constant speed, as the load current increases, the terminal voltage

(a) increases (b) decreases (c) stays the same (d) None of the above

Ans: A

[7] Which of the following statements is false for a series-wound-DC-motor?

(a) The speed decreases with increase of resistance in the armature circuit

(b) The speed increases as the flux decreases

(c) The speed can be controlled by a diverter

(d) The speed can be controlled by a shunt field regulator

Ans: D

[8] The armature resistance of a-DC-motor is 0.5 , the supply voltage is 200V and the back e.m.f. is 196V-at full speed. The armature current is:

(a) 4A (b) 8A (c) 400A (d) 392A

Ans: B

[9] In DC generators iron losses are made up of:

(a) hysteresis and friction losses

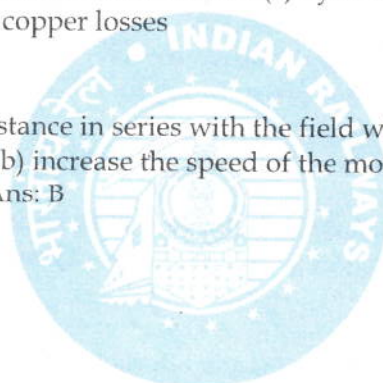
(b) hysteresis, eddy current and brush contact losses (c) hysteresis and eddy current losses.

(d) hysteresis, eddy current and copper losses

Ans: C

[10] The effect of inserting a resistance in series with the field winding of a shunt motor is to:

(a) increase the magnetic field (b) increase the speed of the motor (c) decrease the armature current (d) reduce the speed of the motor Ans: B



70
Electrical-machines-Alternators-

[1] Squirrel cage bars placed in the rotor pole faces of an alternator help reduce hunting
(a) Above synchronous speed only (b) Below synchronous speed only (c) Above and below synchronous speeds both (d) None of the above
Ans: C

[2] The stationary alternator should not be connected to live bus-bars because it
(a) -Is likely to run as synchronous motor (b) Will get short - circuited (c) Will decrease bus - bar voltage though momentarily (d) Will disturb generated emf's of other alternators connected in parallel.
Ans: B

[3] With a unity load p.f, the effect of armature reaction on the main field flux of an alternator is
(a) Distortional (b) Magnetising (c) Demagnetising (d) Nominal
Ans: A

[4] At lagging loads, armature reaction in an alternator is
(a) -Cross-magnetising (b) -Demagnetising (c) -Non-effective (d) -Magnetising
Ans: D

[5] The frequency of voltage generated by an alternator having 4 poles and rotating at 180rpm is
(a) 6Hz (b) 7200-Hz (c) 120-Hz (d) 450-Hz
Ans: A

[6] The main disadvantages of using short pitch winding in alternators is that it
(a) Reduces harmonics in the generated voltage
(b) Reduces the total voltage around the armature coils
(c) Produces asymmetry in the three phase windings
(d) Increases Cu of end connections.
Ans: B

[7] Zero power factor method of an alternator is used to find its
(a) Efficiency (b) Voltage regulation (c) Armature resistance (d) Synchronous impedance
Ans: B

[8] Armature reaction in an alternator mainly affects
(a) Rotor speed (b) Terminal voltage per phase (c) Frequency of armature current (d) Generated voltage per phase
Ans: D

[9] The effect of increasing air gap length in the induction motor will increase the
(a) Power factor (b) Speed (c) Magnetising current (d) Air gap flux
Ans: C

[10] The principle of operation of a 3 phase induction motor is most similar to that of a
(a) Synchronous motor (b) Repulsion start induction motor (c) Transformer with a shorted secondary (d) Capacitor start, induction run motor
Ans: C

MULTIPLE CHOICE QUESTIONS ANSWERS ON THYRISTORS (SCR)

1. An SCR is a triggered device

- (1) Voltage (2) Current (3) Voltage as well as current (4) None of the above

Ans: 2

2. In an SCR circuit, the supply voltage is generally that of break over voltage

- (1) Equal to (2) Less than (3) Greater than (4) None of the above

Ans: 2

3. When an SCR is turned on, the voltage across it is about

- (1) zero (2) 1V (3) 0.1 V (4) 1V

Ans: 4

4. An SCR is turned off when

- (1) Anode current is reduced to zero (2) Gate voltage is reduced to zero (3) Gate is reverse biased (4) None of the above

Ans: 1

5. In an SCR circuit, the angle of conduction can be changed by

- (1) Changing anode voltage (2) Changing gate voltage (3) Reverse biasing the gate (4) None of the above

Ans: 2

6. If firing angle is increased, then the output of an SCR

- (1) Remains the same (2) Is increased (3) Is decreased (4) None of the above

Ans: 3

7. If gate current is increased, then anode-cathode voltage at which SCR turns ON

- (1) is decreased (2) is increased (3) remains the same (4) none of the above

Ans: 1

8. An SCR has PN junctions. (1) Two (2) Three (3) Four (4) None of the above

Ans: 2

9. An SCR has semiconductor layers. (1) Two (2) Three (3) Four (4) None of the above

Ans: 3

10. In AC supply, -an SCR can exercise control over

- (1) Positive half-cycles only (2) Negative half-cycles only (3) Both positive and negative half-cycles (4) Positive or negative half-cycles

Ans: 4

11. AC power in a load can be controlled -by connecting

- (1) Two SCRs in series (2) Two SCRs in parallel (3) Two SCRs in parallel opposition (4) None of the above

Ans: 3

12. When SCR starts conducting, which loses all control?

- (1) Cathode (2) Gate (3) Anode (4) None of the above

Ans: 2

F) TRANSFORMERS**OBJECTIVE QUESTIONS WITH ANSWERS:**

[1] High frequency transformers sometimes make use of ferrite cores because it has

- A. High specific gravity B. High resistance C. High hysteresis D. low permeability

Ans: B

[2] Harmonics in transformer result in

- A. Increased core losses B. Increased I^2R losses C. Magnetic interference with communication circuits D. All of the above

Ans: D

[3] The full load copper loss of a transformer is 1600W. At half-load the copper loss will be
A. 6400W B. 1600W C. 800W D. 400W Ans: D

[4] Power transformers are generally designed to have maximum efficiency around
A. No load B. Half load C. Near full load D. 10% overload Ans: C

[5] Two transformers are connected in parallel. These transformers do not have equal percentage impedance which results

- A. Short-circuiting of the secondaries
- B. Power factor of one of the transformers is leading while that of the other lagging
- C. Transformers having higher copper losses will have negligible core losses
- D. Loading of the transformers not in proportion to their kVA ratings.

Ans: D

[6] The changes in volume of transformer cooling oil due to variation of atmospheric-temperature during day and night is taken care of by which part of transformer?

- A. Conservator B. Breather C. Bushings D. Buchholz relay

Ans: A

[7] The transformer laminations are-insulated from each other by
A. Mica strip B. Thin coat of varnish C. Paper D. Any of the above

Ans: B

[8] Which type of winding is used in 3 phase shell type transformer?
A. Circular type B. Sandwich type C. Cylindrical type D. Rectangular type

Ans: B

[9] During open circuit test of a transformer

- A. Primary is supplied rated voltage B. Primary is supplied full load current
- C. Primary is supplied current at reduced voltage D. Primary is supplied rated kVA

Ans: A

[10] Which of the following is not standard voltage for power supply in India
A. 11kV B. 33kV C. 66 kV D. 122 kV

Ans: D

H) Electrical Safety:

Multiple Choice (circle the correct answer)

1. A person qualified to perform electrical work must possess
 - a. Skills/techniques to distinguish live parts from other parts of electrical equipment.
 - b. Skills and techniques to determine the nominal voltage of exposed live parts.--
 - c. Knowledge on the use of PPE, insulating and shielding materials, and insulated tools.
 - d. All of the above.
2. Electrical injuries are commonly caused by:
 - a. Unsafe equipment or installations b. An unsafe environment c. Unsafe work practices.
 - d. All of the above
3. Current flow from hand to hand is called
 - a. Step potential b. Touch potential c. Amperage d. None of the above.

True or False

4. _____ Conductors offer little resistance to the flow of electric current.
5. _____ Cord and plug equipment should have a three prong plug or be double insulated.
6. _____ Only authorized employees are permitted to work on electrical systems and equipment.
7. _____ Electrical shock can cause damage to tissue, muscle, and internal organs.
8. _____ The longer a person is exposed to an electrical shock (current), the greater the risk of serious injury.
9. _____ Grounding conductors are usually black in color.
10. _____ Ground fault circuit interrupters compare the amount of current going into electrical equipment and the amount of equipment returning.--

Answers

1. D
2. D
3. B
4. T
5. T
6. T
7. T
8. T
9. F (Green)
10. T

(I) ELECTRICAL 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.-

Answers

1. Traction Distribution.
2. 100mts.
3. False.
4. Yes.
5. Permit to work.
6. 100
7. 1676-



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 दि. 10/05/2018

14

PART-B

Conventional Locomotives(WAG7)

Choose the right answer.

1. Current is collected from OHE to A.C.loco through ()
(a) Transformer (b) circuit breaker (c) Pantograph (d) servo motor
Ans: (C)
2. Taps on auto winding of TFP are provided for ()
(a) speed control (b) protection from surges (c) shorting of windings (d) avoiding overloading of TFP
Ans: (a)
3. QOP relay is used to detect ()
(a) Earth fault in auxiliary circuit (b) Over current (c) Earth fault in power circuit (d) Surges
Ans: (C)
4. For converting a.c. to d.c., following equipment is used in locos ()
(a) Transformer (b) Smoothing reactor (c) Silicon Rectifier (d) Circuit breaker
Ans: (C)
5. Which one of the following is not a safety item ()
(a) ACP Unit (b) Hand brake (c) Head Light (d) Corridor Light
Ans: (d)
6. The continuous rpm of a Hitachi Traction Motor is ()
(a) 895 rpm (b) 100rpm (c) 110rpm (d) 125rpm
Ans: (a)
7. MVRH is a ()
(a) D.C.Motor
(b) A.C.Motor
(c) Universal Motor
(d) None of the above
Ans: (b)
8. Wheel slipping occurs ()
(a) due to Down gradient (b) due to poor brake power (c) if applied tractive effort is more than adhesive weight of loco (d) none of the above
Ans: (c)
9. KVA rating of TFP used in WAG-7 WAP4 locos is ()
(a) 3460KVA (b) 3900KVA (c) 5400KVA (d) 6000KVA
Ans: (C)
10. In Traction Transformer ()
(a) A33-A0 Auto Transfer Winding (b) A34-A0 Primary Winding (c) a0-a1 Auxiliary Winding
(d) All are correct
Ans: (d)
11. ARNO is used for ()
(a) cooling T.M. (b) converting 1 to 3 phase a.c. (c) cooling TFP oil (d) converting a.c. to d.c.
Ans: (b)
12. For changing direction of loco movement, following is used ()
(a) CTF (b) Reverser (c) Shunting contactor (d) Pantograph
Ans: (b)
13. In WAG-7 loco following Smoothing Reactor is used ()
(a) SL-30 (b) SL-40 (c) SL-42 (d) None
Ans: (a)
14. Twin Beam Head Light bulb has twin filament of ()
(a) 100 and 110 watts (b) 100 and 120 watts (c) 100 and 90 watts (d) 80 and 100 watts
Ans: (C)
15. BA are used for powering ()
(a) ARNO convertor (b) Traction Motor (TM) (c) Cab heater (d) Auxiliary compressor (MCPA)
Ans: (d)
16. Hydrometer is used for measuring ()
(a) level of electrolyte in BA (b) total charge stored in BS (c) specific gravity of electrolyte
(d) terminal voltage of BA
Ans: (C)

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17. Maximum air pressure in electric loco brake cylinder with A9 application with cast iron brake blocks is ()

- (a) 2.5 kg/cm² (b) 3.5 kg/cm² (c) 2 kg/cm² (d) 5 kg/cm²

Ans: (C)

18. Disturbance of neutral axis of rocker ring in a DC motor will result in ()

- (a) poor commutation (b) increase in voltage (c) jamming of bearing (d) None of the Above

Ans: (A)

19. Gear ratio of WAG7 loco is _____ ()

- (a) 18: 14 (b) 23: 58 (c) 17: 57 (d) 16: 65

Ans: (D)

20. Maximum allowed wheel dia variation in service of WAG7 Locos ()

- (a) on same axle is 2.5 mm (b) one same bogie is 8 mm (c) Both (a) (b) (d) None of the above

Ans: (A)

21. The requisition No. for a N.S. item is ()

- (a) S 1313 (b) S 1302 (c) S 1315 (d) S 1305

Ans: (B)

22. Maximum Tractive effort of a loco is the ()

- (a) maximum power developed by the loco (b) maximum torque developed by the loco at 5 KMPH
(c) maximum starting torque developed by the loco without wheel slipping
(d) None is correct

Ans: (C)

23. Relay to detect abnormalities in TFP is ()

- (a) QRSI (b) QOP (c) QLM (d) QOA

Ans: (C)

24. For protection of traction motors against over voltage, following relay is () used

- (a) QOP (b) Q20 (c) QD (d) QRSI

Ans: (B)

25. AFL circuit works in case of ()

- (a) train parting (b) chain pulling (c) brake application (d) both (a) (b)

Ans: (D)

26. The insulation class of an auxiliary motor is ()

- (a) H Class (b) B Class (c) F Class (d) C Class

Ans: (C)

27. Panto raising time is adjusted between ()

- (a) 6 to 1 sec. (b) 5 to 1 sec. (c) 5 to 8 sec. (d) None

Ans: (A)

28. Centre pivot of Bogies of WAG7 is

- (a) for Tractive effort transfer (b) Weight of Loco body sharing (c) Both (a) and (b) (d) None of the above

Ans: (A)

29. In a WAG7 loco the no. of brake cylinders are ()

- (a) 8 (b) 1 (c) 12 (d) 16

Ans: (A)

30. Traction motors are oriented in one direction per bogie in the following class of locos ()

- (a) WAG5 (b) WAM4 (c) WAG7 (d) WAP4

Ans: (C)

31. MU2B and F1 Selector Valves are used to isolate () rear loco

- (a) A9 and SA9 of rear loco (b) RSI block in MU operation (c) None of the above (d) Both (a) and (b)

Ans: (A)

32. DP Test is done to detect ()

- (a) Acetylene content in oil (b) Methane level (c) inside void in axle (d) surface crack

Ans: (D)

33. Field shunting in loco is done to ()

- (a) increase tractive effort (b) increase power of loco (c) increase speed (d) both (b) (c) are correct

Ans: (C)

34. QLM setting of WAG-7 loco is ()

- (a) 9 Amp. (b) 8 Amp. (c) 7 Amp. (d) 1 Amp.

Ans: (A)

35. Noise / vibration level of bearing is measured in ()

- a. DB b. dB c. GB d. BD

Ans: (B)

36. EFDJ coil of DJ in WAG-7 loco is R4 ()

- a. holding coil b. closing coil c. None d. Both (a) (b)

Ans: (B)

37. Hitachi Traction Motor is a ()

- a. 4 Pole DC Motor b. 6 Pole AC Motor c. 4 Pole AC Motor d. 6 Pole DC Motor

Ans: (D)

38. In MVMT bearing used is ()

- a. 6313 with C3 clearance b. 6312 with C4 clearance c. 6312 with C3 clearance d. 6313 with C4 clearance

Ans: (A)

39. Minor penalties can be imposed to withhold ()

- a. 2 sets of passes b. 2 increments for one year c. promotion for one year d. all the above

Ans: (D)

40. Opening of the AAL Make VCB is done through ()

- a. air pressure b. charged spring c. both (a) (b) d. none of the above.

Ans: (A)

41. What type of bearing is used in WAG-7 loco axle box? ()

- a. ball bearing b. roller bearing c. tapered bearing d. needle bearing

Ans: (B)

42. In a failed WAP-4 loco, it is found that in TM5 carbon brush was touching () to the TM body, which relay would have been operated

- a. QLM b. QRSI c. QOP1 d. QOP2

Ans: (D)

43. What is the voltage of OHE feeding power to WAG-7 loco ()

- a. 25KV AC b. 150V DC c. 11 KV AC d. 44V AC

Ans: (A)

44. MVRH is provided to cool the ()

- a. Traction Motor b. RSI block c. TFP Radiator d. Compressor

Ans: (C)

45. What is the time interval between IA and IB schedule of WAG-7 loco is () days

- a. 45 b. 60 c. 90 d. 30

Ans: (B)

46. Loco brake applies ..kg pressure ()

- a. 2.0 b. 3.5 c. 1.5 d. 7.0

Ans: (B)

47. Back lash term is related to. ()

- a. TFP b. Battery c. CBC d. Gears

Ans: (D)

48. There are .. nos. of main poles (MP) in a Hitachi TM. ()

- a. 6 b. 4 c. 2 d. 12

Ans: (A)

49. The Lubricant used in Suspension Bearing of a Hitachi Motor

- a. 170-T b. SP57 c. Servo RR3 d. Mineral Oil

Ans: (C)

50. Multimeter is used to measure ()

- a. voltage only b. current only c. resistance only d. all of the above

Ans: (D)

51. WAG-7 loco is using .. type of bogies ()

- a. flexicoil co-co b. Tetra mounted High adhesion fabricated Bogie c. trimounted co-co d. any of the above

Ans: (B)

51. Loco TFP has .. Nos. of taps for voltage control of Conventional Loco (WAG5, WAP4, WAG7) ()

- a. 16 b. 32 c. 12 d. depending upon the type of loco

Ans: (B)

52. What are the time delays of Q118, Q44 and QTD Relays? ()

- a. 5 sec, 5 sec, 1 sec b. 5 sec, 5 sec, 5 sec c. 5 sec, 0.6 sec, 5 sec d. 1 sec, 0.6 sec, 5 sec

Ans: (C)

53. Sand is used in locomotives to avoid. ()

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a. wheel skidding b. wheel slipping c. brake failure d. all the above Ans: (B)

54. Leakage Test is conducted to find out leakage in ()

a. CP b. MR c. BP d. whole loco.

Ans: (D)

55. Safety Relays are

a) All DI type b) All DU type c) All DI & DU type d) Some are DU type and some are DI type.

Ans: (C)

56. DI Type safety relays are

a) QOP, QOA b) QRSI, QLA, QLM c) QOP, QPDJ d) Q44, Q118

Ans: (B)

57. DU type safety relays are

a) QOP, QOA b) QLM, QRSI c) Q44 d) Q118 d) none of the above

Ans: (A)

58. CT ratio of RSILM: _____

a) 1000: 5 b) 2000: 5 c) 4000: 5 d) 1000: 15

Ans: (C)

59. CT ratio of TFILM

a) 50: 5 b) 100: 5 c) 250: 5 d) 200: 5

Ans: (C)

60. Pick up voltage of Q20 in WAG7 locos:

a) 750V b) 800V c) 865 V d) 850V

Ans: (C)

61. While RB is in service which relay will act if any earth fault occurs in the power circuit in WAG7 Loco

a) QOP1 b) QOP2 c) QOA d) QOP1 & 2

Ans: (D)

62. The resistance value of RU in WAG7 locos is

a) 88 kohms b) 10kohms c) 120Kohms d) 22kohms

Ans: (A)

63. The resistance value of RQ20 in WAG7 locos or 6P locos

a) 2.4 kohms b) 13.2 kohms c) 24 kohm d) 10koh

Ans: (B)

64. The setting value of Q44 is

a) 1 sec b) 2 sec c) 5 sec d) 0.6 sec

Ans: (D)

65. The setting value of Q118 is

a) 2.5 sec b) 5. sec c) 0.6 sec d) 1.5 sec

Ans: (B)

66. In twin Beam headlight the rating of bulb is _____

a) 24V, 70/75W b) 24V, 90/100W c) 110V, 70/75W d) 110V, 90/100W

Ans: (B)

67. The input / output voltage ratings of the DC-DC converter are:

a) 110V / 110V b) 110V/50V c) 110V / 24V d) 110V/20V

Ans: (C)

68. In a twin beam Headlight, what is the voltage of bulb in dimmer operation.

a) 110V b) 55V c) 24V d) 12V

Ans: (C)

69. What is the advantage of twin beam headlights system:

a) Headlight glows while passing on neutral section. B) Headlight focusing is good.

c) Even one bulb fuses also, it will not effect the running of loco to destination.

(d) All the above

Ans: (A)

70. The rating of a cab heater is.

a) 500, 500W (b) 40,500W (c) 10,500W (d) 5,500W

Ans: (A)

71. How many CPs are required for Air brake WAG7 Loco:

(a) Minimum 2 CPs (b) Maximum 2 CPs (c) Minimum 3 CPs (d) Maximum 3 CPs

Ans: (D)

72. What is class of Insulation specified for 180degrees temperature:

(a) B class (b) A class (c) H class (d) Y class.

Ans: (C)

73. The object of sanders is to

- (a) Improve the adhesion (b) Avoid wheel slipping (c) To have momentum (d) All the above

Ans: (B)

74. Maximum tractive effort at wheel rim of WAG7 loco is

- (a) 34.3 tonnes (b) 30 tonnes (c) 20.5 tonnes (d) 44 Tonnes:

Ans: (D)

75. The specific gravity of Electrolyte of a lead acid battery at 27 C should be

- (a) 1.250 (b) 1.200 (c) 1.100 (d) 1.180

Ans: (A)

76. Specific gravity of electrolyte is measured using.

- (a) Thermometer (b) Hygrometer (c) Hydrometer (d) Lactometer

Ans: (C)

77. DC series motor is used for traction purpose because:

- (a) High speed (b) High starting torque (c) Low starting torque (d) Constant torque at all speeds.

Ans: (B)

78. Size of each cable connected to Traction Motor of WAG7 is

- (a) 120 Sq.mm (b) 150 Sq.mm (c) 300 Sq.mm (d) 270 Sq.mm

Ans: (C)

79. Size of each cable connected to MVMT1/MVMT2/MRH in AC locomotive is

- (a) 3 sq.mm (b) 10 sq.mm (c) 25 sq.mm (d) 50 Sq.mm

Ans: (C)

80. Size of each cable connected to MCP/MPH is

- (a) 3 Sq.mm (b) 10 Sq.mm (c) 25 Sq.mm (d) 50 Sq.mm

Ans: (B)

81. Size of cable used in control circuits is

- (a) 3 Sq.mm (b) 10 Sq.mm (c) 25 Sq.mm (d) 50 Sq.mm

Ans: (A)

82. Size of cable connected to Arno

- (a) 100 Sq.mm (b) 150 Sq.mm (c) 120 Sq.mm (d) 150 or 120 Sq.mm

Ans: (B)

83. Breaking excitation transformer purpose is to.

- (a) Excitation of armature (b) Excitation of field (c) Excitation of both (d) Excitation of TFP

Ans: (B)

84. BP1 DJ is pressed

- (a) To start the loco (b) To stop the loco (c) To close DJ (d) To trip DJ

Ans: (C)

84. HQOP HQOA are

- (a) Earth fault relay by pass switches
(c) Earth fault relays
(b) Earth fault relay isolation switches (d) All the above.

Ans: (A)

85. Flasher light is provided in loco/MEMU

- a) To communicate with the loco driver coming in the opposite direction about any difficulty.
b) To communicate with the loco driver coming in the same direction, about any Difficulty.
c) To inform the opposite coming loco driver about the abnormality noticed about OHE/Track.
d) All above.

Ans: (D)

86. EM contactor pressure is

- (a) 650 to 800 gms (b) 600 to 700 gms (c) 600 to 750 gms (d) 800 to 1100 gms

Ans: (D)

87. Electrolyte used in a lead acid battery is

- (a) Concentrated sulphuric acid (b) Diluted sulphuric acid (c) Nitric acid
d) None of above.

Ans: (B)

88. The active material used for positive plate of lead acid battery is ---- (lead peroxide)

PBO2

89. The fuse rating of CCPT is

- a) 6 AMPS (b) 1Amps (c) 16 Amps (d) 35 Amps

Ans: (C)

90. CHBA function is normally

- a) To supply the DC charging current to batteries (b) To supply the D.C. load current to various control circuits (c) To supply the current to Auxiliary motors (d) Both (a) (b)

Ans: (D)

91. The purpose to RSI Block is

- (a) To convert AC to DC (b) To convert DC to AC (c) To generate AC (d) To generate DC

Ans: (A)

92. Battery negative is connected to loco body through

- (a) HQOP (b) HQOA (c) HOBA (d) HQCVAR

Ans: (C)

93. MVMT1/MVMT2 are meant for cooling of

- (a) Armature of TM (b) Field coils of TM (c) Stator of TM (d) All of these

Ans: (D)

94. Shunting contactors are provided in the loco for the purpose of

- (a) Increasing the speed (b) To decrease the speed (c) To stabilize the speed (d) to stop the train.

Ans: (A)

95. The speed control method used in AC locomotive/MEMU

- (a) Voltage control (b) Current control (c) Rheostatic control (d) Regenerative control

Ans: (A)

96. The type of Electric braking system used in WAG7 locomotive is

- (a) Regenerative (b) Rheostatic (c) Both (d) None of the above

Ans: (B)

97. Instrument used to measure contact resistance

- (a) Whetstone bridge (b) Multi meter (c) Micro ohmmeter. (d) Ammeter

Ans: (C)

98. Action in lead acid cell

- a) Reversible (b) Irreversible (c) Both a&b (d) None of a& b

Ans: (A)

99. Purpose of inter pole in the traction motor

- a) To avoid sparking on the commutator (b) To avoid bad commutation (c) To divert field current (d) Both a & b

Ans: (D)

100. During rheostat braking traction motor works as a

- a) Generator (b) Converter (c) Motor (d) Inverter

Ans: (A)

101. The relay QOP/QOA is the relays of sensing

- a) Voltage (b) Current (c) Resistance. (d) Inductance

Ans: (A)

102. IN WAG-7 BP pressure not building up due to

- a) A9 defective (b) C3W defective (c) SA9 defective (d) R6 defective (e) None of the above

Ans: (A)

103. IN WAG7 MR pressure not building up

- a) A8cock closed condition (b) Bogie cocks closed condition (c) VEAD cock closed (d) MR drain cock not closed (e) None of the above

Ans: (D)

104. IN WAG7 MCPA pressure not building up on run

- a) VESA air leaking (b) VEAD air leaking (c) IP (E) air leaking (d) DJ oil separator drain cock not closed (e) None of the above

Ans: (D)

105. In MU loco, driver experienced Rear loco brakes are not applying found the following trouble

- a) MU2B leading loco in leading (b) MU2B trailing loco in leading (c) A9 differential cock closed (d) SA9 problem (e) None of the above

Ans: (B)

106. Duplex check valve defective in WAG7 loco which resulted to

- a) Horn/wiper not working b) Horn / sanders not working c) Horn/FP not working d) All the above
e) None of above

Ans: (D)

107. Type of three phase locomotive available on Indian Railways

- a) WAP1/WAP5/WAP4 b) WAG7/WAG9/WAP7 c) WAP5/WAP7/WAG9 d) None of the above

Ans: (C)

108. Type of motor used in 3 phase locomotives

- a) DC series motor b) Three phase IM c) Single phase IM d) DC Shunt Motor

Ans: (B)

109. Advantage of three phase locos.

- a) Regenerative basis b) UPF c) Both a & b d) None of the above.

Ans: (C)

110. In 3 phase locomotives, three phase indicates?

- a) Three phase OHE supply system b) Three phase supply to the motor c) Both a & b d) None of the above

Ans: (B)

111. Higher horse power locomotive available with type of locomotive on Indian Railways.

- a) WAG9 b) WAP7 c) Both d) WAP4

Ans: (A)

112. Important power device used in three locomotive for power conversion

- a) IGBT b) GTO c) a & b d) IGCT

Ans: (C)

113. Type of Pantograph used in 3 phase Locomotives

- a) AM12 b) AM92 c) IR03 d) Both b & c

Ans: (A)

114. Different gear ratios in WAG9 loco is

- A 15:77, 18:64 b. 15:77, 20:72 c. 15:77, 21:107 d. 15:77, 17:77

Ans: (B)

115. Maximum braking effort of WAG-9 Loco is

- a. 260KN b. 458KN c. 182KN d. None of the above

Ans: (B)

116. Voltage applied to Traction Motors (Phase to Phase) in WAG9-loco is

- a. 2180Volts b. 2800Volts c. 750Volts d. None of the above

Ans: (A)

117. If ZBAN is switched ON.

- a) FP drops to zero b) BP drops to zero c) Over charging of BP takes place d) BP & FP drops to zero

Ans: (B)

118. Machine Room blower-I receives supply from

- a. BUR-1 b. BUR-2 c. 415 Volts directly from Transformer d. 110Volts directly from Transformer

Ans: (C)

119. Machine Room blower works

- a. In cooling mode b. In driving mode c. In cooling and Driving modes d. In Driving and self hold mode

Ans: (C)

120. Minimum Voltage relay in 3 phase locos is for

- a. Sensing of OHE Voltage in driving mode b. Sensing of OHE Voltage in Cooling mode
c. Voltage protection in self hold mode d. Over voltage protection in simulation mode

Ans: (B)

121. Purpose of using single phase machine Room blower in 3 phase locos

- a. Facilitating to work in driving mode for cooling machine room
b. Facilitating to work in self hold mode for cooling machine room
c. Facilitating to work in simulation mode for cooling machine room
d. Facilitating to work in cooling mode for cooling machine room

Ans: (D)

122. Minimum voltage relay in three phase locos

- a. 86 in SB-2 b. 78 in SB-1 c. 86 in SB-1 d. 78 in SB-2

Ans: (C)

123. For working in cooling mode BL is to be operated from

- a. D-OFF-C b. OFF-C c. D-OFF-C-OFF-C d. b & c

Ans: (D)

124. Continuous glowing of LSFI indicates

- a. Any of the sub-system is isolated b) A priority-II fault c. Any auxiliary motor is isolated
d) None of the above

Ans: (A)

125. DC Link voltage of Traction Converter is

- a. 1172 Volts b. 2180Volts c. 2800Volts d. None of the above

Ans: (C)

126. Traction Motors in three phase loco are

- a. 3 Phase slip ring induction motor b) 3 Phase squirrel cage induction motors c) 3 Phase synchronous motor
d) DC series motor

Ans: (B)

127. Battery charger rectifier in 3 phase locos:

- a. Half Wave b. Bridge Full wave c. Full Wave center tap d. Both b & c

Ans: (B)

128. BUS STATION cooling fans work on

- a. 110Volts b. 48Volts DC c. 24Volts DC d. 110Volts AC

Ans: (C)

129. VCB trips when transformer oil temperature rises to

- a. 80degrees b. 84 degree c. 75 degrees d. 70degrees

Ans: (B)

131. Output of Auxiliary winding is

- a. 415Volts b. 1000Volts c. 2100Volts d. 1200Volts

Ans: (B)

132. In three phases locos Priority-II message means

- a. Trips VCB b. Shut down loco c. Isolates sub-system d. Allows normal functioning

Ans: (D)

133. VCB trips when auxiliary circuit current exceeds

- a. 280Amps b. 400Amps c. 500Amps d. 1000Amps

Ans: (B)

134. Output frequency of a Traction Converter is

- a. 60-120HZ b. 62-132HZ c. 50-100HZ c. None of the above

Ans: (B)

135. ZTEL switch is used in

- a. Banking mode b. Inching mode c. Simulation mode d. None of the above

Ans: (B)

136. Type of batteries used in three phase locos

- a. NiCd b. Both a & c c. Lead Acid d. None of the above

Ans: (A)

137. Primary over current relay is

- a. 89.7 b. 78 c. 89.6 d. 86

Ans: (B)

138. Time delay of Timer relay in MR Blower

- a. 08 Sec b. 10Sec c. 12 Sec d. 05 Sec

Ans: (B)

139. Current rating of OCB MCB is

- a. 40Amps b. 63 Amps c. 80Amps d. 16 Amps

Ans: (B)

140. The brake application time through DBC in WAG-9 locos is

- a. 06 to 10secs b. 10 to 15 secs c. 15 to 20secs d. none of the above

Ans: (D)

141. Number of electronic cards available in E-70 panel

- a. 4 b. 6 c. 2 d. 3

Ans: (A)

142. The pressure switch associated with working of Baby compressor is
a. Pn 26 b. Pn 60 c. Pn 59 d. Pn 6

Ans: (A)

143. The number of PBU available in WAG9 locos is
a. 04 b. 12 c. 02 d. 08

Ans: (A)

144. The number of sanders to be kept in service in WAG9-locos is
a. 08 b. 12 c. 04 d. None

Ans: (A)

145. In E-70 brake system locos the coc-47 is used for
a. Moving the loco dead b. Application of brakes through A9 c. Operation/Isolation of PBU
d. Operation/Isolation of sanders

Ans: (A)

146. The size of choke available in sander circuit in WAG-9/WAP-7 locos is
a. 5.5mm b. 2mm c. 3 mm d. 4mm

Ans: (C)

147. The switch used for isolation of vigilance control device is
a. 125 b. 154 c. 160 d. 237.1

Ans: (D)

148. The operating pressure of contactors in TC1, 2 HF
a. 10kg/sqcm b. 6kg/sqcm c. 5kg/sqcm d. 8kg/sqcm

Ans: (D)

149. The pressure switch used for monitoring working of pantograph is
a. Pn 44 b. Pn 60 c. Pn 09 d. Pn 26

Ans: (C)

150. After completion of self-test in 3 locomotives following node will appear
a. 590 b. 570 c. 550 d. 504

Ans: (D)

151. Conversion of BP control pressure into electrical signal in 3 locomotives is done by _____
a. Pressure sensor b. Pressure switch c. Pressure transducer d. None of the above

Ans: (C)

152. 260 indicate _____ equipment.
a. Filter block b. SR rack c. Pneumatic panel d. BUR

Ans: (C)

153. MU is not possible if _____ card is defective in any one of the 3 locomotives.
a. SLG1 b. ALG1 c. FLG1 d. SLG2

Ans: (C)

154. If MVR is not picking up then _____
a. Traction not possible b. RB not possible c. Cooling mode not possible d. Driving mode not possible

Ans: (C)

155. _____ & _____ processor cards present only in VCU1 and VCU2 respectively.
a. FBV, DIA b. STB, FBV c. ZBV, DIA d. STB, ZBV

Ans: (C)

156. _____ no. of processor cards is interchangeable between VCU1 and VCU2 after reloading the appropriate software.
a. 2 b. 5 c. 6 d. 3

Ans: (B)

157. SLG1 SLG2 is interchangeable by changing _____
a. Hex address Software b. Software c. Hex address only d. Not interchangeable

Ans: (A)

158. TM speed sensor output is connected to _____ card in the _____ rack.

a. ASC PERI, SR b. NSC PERI, SR c. STB, VCU d. HBB, VCU

Ans: (A)

159. Number of TFP and SR oil pressure sensors available in loco are _____ and _____ respectively.
a. 4, 4 b. 4, 2 c. 2, 4 d. 1, 2

Ans: (B)

160. BUR 1 2 operate at _____ Frequencies.

i) 37 Hz ii) 50Hz iii) 44 Hz

a.II b. I, II III c.II only d.I, III

Ans: (A)

161. Consider following activities

1) SR changing 2) SRMPH changing 3) OCB radiator changing 4) VCB changing

Which of the above activities requires roof lifting?

a. 1 4 b. 2 3 c. 2 4 d. 3

Ans: (D)

161. Consider following activities

1) TM changing 2) Wheel Set changing 3) Axle damper changing 4) PHS changing

Which of the above activities requires loco lifting?

a. 1 & 4 b. 3 & 4 c. 2 & 3 d. 1 & 2

Ans: (D)

162. Correct arrangement of foot switches in 3 locomotives from Left to right in loco cab is _____.

L M R

a. PVCD PVEF PSA

b. PSA PVCD PVEF

c. PVEF PSA PVCD

d. PSA PVEF PVCD

Ans: (D)

163. In SR1 rack of 3 locomotives, speed sensor connected to Sub-D, it "C" senses speed of _____.

a. TM 3 b. TM 2 c. TM 1 d. TM 4

Ans: (B)

164. Following combinations of gear ratios are used for WAG9 locomotive _____.

a. 23:58 20:72 b. 23:72 20:58 c. 20:72 21:107 d. 15:77 21:107

Ans: (C)

165. For performing shunting _____ switch to be kept in _____ position and the speed limit is _____ kmph.

a) 154, I, 1 kmph b) 152, 0, 5 kmph c) 160, I, 15 kmph d) 162, 0, 5 kmph

Ans: (C)

166. While working loco in _____ mode, VCD need not be acknowledged.

a. Shunting b. Constant Speed c. Inching mode d. Braking mode

Ans: (C)

167. Which of the following statement is correct.

a) Teeth of bull gear of WAG9 < Teeth of bull gear of WAP7

b) Teeth of pinion of WAG9 > Teeth of pinion of WAP7

c) Teeth of bull gear of WAG9 > Teeth of bull gear of WAP7

d) None of the above

Ans: (C)

168. The number of teeth on the M/s ARC make Hall effect speed sensor ring are _____.

a. 30 b. 120 c. 60 d. 90

Ans: (B)

169. If the TM rotates at a speed of 600rpm then the frequency of pulse generated by ARC make speed sensor is _____.

a. 1.8 KHz b. 0.6 KHz c. 0.3 KHz d. 1.2 KHz

Ans: (D)

170 Consider following statements

1. No Inductance variation between different phases of motor

2. Low IR value

3. Low Temp. rise above ambient during run test

4. Low dB level recorded during run test

a. 1, 2 3 b. 2, 3 4 c. 1, 3 4 d. 1, 2 4

Ans: (C)

171. Contactor 52/2 in auxiliary circuit is used for redistribution of _____.

a. MRB b. SCTMB c. TMB d. Battery Charger

Ans: (D)

24

172. If any one the BURs isolated which of the following indicates correct position of 52.4/1, 52.4/2, 52.5/1 & 52.5/2 Contactors.

52.4/1 52.4/2 52.5/1 52.5/2

- a. close close close open
- b. close open close open
- c. close open close close
- d. close open open close

Ans: (D)

173. Which of the following statements is correct?

- a) 89.5 Earth fault relay in auxiliary converter and it is located in HB1 panel
- b) 89.5 Earth fault relay in 415/110v and it is located in HB2 panel
- c) 89.5 Earth fault relay in auxiliary converter and it is located in HB2 panel
- d) 89.5 Earth fault relay in 415/110v and it is located in HB1 panel

Ans: (D)

174. 24V and 48VDC-DC converter feeds _____ and _____ respectively.

- a) Electronic rack cooling fan Indication lamps
- b) Indication lamps Electronic rack cooling fan
- c) Indication lamps Head light
- d) Head light Indication lamps

Ans: (B)

175. Transformer in 3 locomotives is having _____ number of windings.

- a. 5 b. 6 c. 7 d. 8

Ans: (C)

176. MCB for machine room lightning is _____.

- a. 310.1/1 b. 310.7 c. 338.1 d. 310.4

Ans: (D)

177. _____ number of change over contactors are provided in auxiliary circuit of 3 locomotives.

- a. 6 b. 9 c. 10 d. 8

Ans: (B)

Fill in the blanks

1. Pinion and bull gear ratio of a WAG 7 loco is 16:65
2. The axle load of WAG9 is 20.5+-2% Tonnes
3. Capacity of battery provided in electric loco (WAG-7) is 75A.H.
4. Full form of MVRH is Blowing for cooling Transformer Oil (through Radiator)
5. Thickness of Flange at 3 mm Flange wear is 29mm
6. RPS is used to Parallel to field of Traction Motor.
7. IP Coil is used to improve Commutation
8. Higher gear ratio is used for Higher starting torque.
9. Bibby/Disc Coupling is provided to couple Main compressor and Motor
10. DGA stands for Dissolved GAS analysis
11. Equivalent resistance of 5Ω Resistor and 3Ω Resistor connected in parallel is 1.875 Ohms
12. Type of Pantograph used for WAG-7 loco is AM12
13. RSI block is Full Wave Bridge Rectifier.
14. Q-20 Relay is a Traction Motor Over Voltage Relay
15. Bo-Bo bogies have Two no. of axles in each bogie.
16. In DBR operation, traction motor works as Generator
17. AM12, AM92 are the type of PantoGraphs
18. Every loco should be provided with 4 nos. of Fire Extinguishers
19. Brake application and release timing through A9-should be 20/25 to 25/30 sec. While dispatching the loco from shed.
20. Through SA9; B.C. Pressure is 3.5Kg/Cm²
21. BC Piston travel should be 107 to 117 mm for WAG7 locos.
22. Leak hole test is conducted for Proportional brake system.
23. With two CPs in working loco alone, the BP pressure should reach within 150 secs.
24. ZLS switch is provided to switch off signaling lamp of rear loco in MU.

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25. Rating of HS15250A is 630KW
26. Minimum air pressure required to raise the panto is 6.5kg/cm²
27. Opening time of VCB should be less than 45msec.
28. Voltage operated relays are _____ type.(DU)
29. Current operated relays are _____ type.(DI)
30. Setting value of QRSI relay _____ in WAG7/WAG5 locos (5Amps)
31. The purpose of SL is to -----Remove the pulses in DC output from the rectifier(AC Pulses)
32. The resistance value of RPGR is -----(One Lakh Ohms)
33. The resistance value of RGR is -----(1.6Ohms)
34. The HP of MVSL is -----(3HP)
35. LECE is provided in the loco to indicate. -----(continuity of Fuse)
36. LSCHBA is provided in the loco to indicate -----(Charger working)
37. **Additional CCBA** provided to protect batteries from fire
38. DC-DC converter provided to use head lamps of loco in _____ section(In all sections including Neutral Section)
39. Over charging of batters results -----.(Gasing)
40. Under charging of batters results.-----.(Suplhation)
41. Tan delta being measured to monitor -----.(Dielectric heat dissipation factor)
42. DGA being measured for insulating oil.-----.(To monitor the health of TFP)
43. Transformer breather used for -----.(To give Dry air and absorb the moisture in TFP Oil)
44. Traction Motor natural axes set by method -----.(KICK)
45. Current transformers are used to measure ----- in AC systems.(High Currents)
46. -----equipment offers protection against safety for equipment as well as human in the locomotive. (HOM)
47. The number of auxiliary motors starts along with ANNO-----.(5)
48. SJ is connected in series with.....(RS Shunting Resistor)
49. Tolerance of voltage in static converter -----.(415+5%) .
50. ----- is used as insulation and coolant in the Transformer of conventional Locomotives(**Inhibited Minerol oil as per IS12463**)
51. Tan delta test to detect.-----(**Dielectric strength of Equipment [Health of Insulation]**)
52. Expand FRPCPY -----.(**Failure Rate percentage per year**)
53. Effective value of RC-network across a3,a4&a5,a6 in WAG7loco -----.(Resistance 1.5Ohms, Capacitance: 50Micro Farads)
54. Type of traction motor bearing -----.(Cylindrical Roller Bearings)- ..
55. Shock pulse meter to.....(to check the vibration level of Bearings)
56. Class of insulation for auxiliary motors winding -----.(H)
57. UA is connected to **ARNO U&V phases** to read auxiliary power voltage corresponding to **Auxilairy winding voltage**
58. -----.. is used to estimate moisture content in transformer oil.(BDV Test)
59. Water content allowable in the transformer oil max ..----- in service oil, new filtered oil----- (35PPM, 25PPM)
60. Specific resistance at 90 C (OHM-cm)----- new oil 35x 1ohm Cm (min) (1X10¹² Ohm Cm)
61. Die electric dissipation factor (Tan delta) at 90c (IS-6267 71)----- for in service oil new filtered oil. (1.0max, 0.002max)
62. Acidity 0.5 mg KOH / Gm (max) in service for new filtered oil -----KOH/gm (0.05mg KOH/Gm)
63. Sediments and perceptible sludge allowable in TFP oil ..-----.(0.10% by mass)
64. Transformer oil flash point minimum -----for serviceable oil and----- for new filtered oil. (140⁰ C, above 140⁰ C)
65. Interfacial tension at 27degrees----- for new filtered oil (0.04 Neuton Meters)
66. Oxidation inhibitor ----- by mass (max) (>0.02%)
67. Arc horn gap for WAG-7 Hitachi Traction Motor is -----.(11.5mm to 13.5mm)
68. The purpose of star, delta starter for induction motor is to ----- .on line. (To reduce starting current)
69. VCB pressure switch setting cut in -----in M/s Schneider Make VCBs (4 to 4.5Kg/Cm²)
70. PHGR oil strokes -----.(40-60 per Minute)

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26

71. Tightness (torque) of GR segments ----- (3.5Kg-m)
72. Minimum thickness of GR segments ----- (7.8+/-20%)
73. Main contact pressure of reverser/CTF ----- (10+/-1Kg)
74. Effective value of CAPTFP 3,4,5&6 ----- (0.83micro Farad)
75. EM contact pressure ----- (800 to 1100gms)
76. EM contactor main contact air gap ----- (8.5+/-1mm)
77. C118 contactor pressure contact (C118) air gap ----- (5 to 8Kg Contact(C118) air gap 16 to 18mm)
78. CGR contactor pressure ----- (7.8+/-20%Kg)
79. Transformer oil used for ----- (Cooling of Insulation and winding.)
80. Pyrometer is used to measure ----- (Temperature)
81. Specific gravity of fully charged cell ----- (1240)
82. Contact used for AC MVRF ----- (C108)
83. Hydrometer is used to measure ----- (Specific Gravity)
84. CGR contacts thickness ----- (46/36mm)(New/Condemned)
85. CGR contacts opening ----- (29-33mm)
86. The rating of ATFEX ----- (60KVA)
87. The current through RGR flows when ----- are closed. (CGR 1 – 2 closed)
88. Fully charged cell gives off ----- at cathode and ----- at anode. (Water, Electrons)
89. The input supply of CHBA ----- output. (380 to 415V, Output:110V)
90. ----- Class of insulation class of material can with stand highest temperature. (C)
91. TFVT input ----- output 11V A.C (230VAC)
92. The air gap between stator and rotor of MVRH ----- (2mm)
93. The air gap between stator and rotor of MVMT is ----- (2mm)
94. The size cable connected to ARNO ----- (150Sqmm)
95. Two pole synchronous motor runs at ----- rpm(3000RPM)
96. Un serviceable scrap is placed ----- on the form ----- (DS dead stock) (DS-8)
97. Class of insulation and temperature
Y= 90c A=105c E=120c B=130c F= 155c. H=180c, C=225c
98. RGR Resistance value ----- (1.6Ohms)
99. R QOP resistances valve ----- (3X3200Ohms)
100. R118 resistance ----- (0.47Ohms)
101. RHOBA resistance ----- (210Ohms)
102. QOP/QOA coil resistance value ----- (1800Ohms)
103. Q30 coil resistance ----- (1190Ohms)
104. Q44 /Q118 coil resistance value ----- (3.8Ohms)
105. QLM/QE/QF/QRSL relays resistance ----- (0.03ohms/0.03ohms/0.03ohms/0.03ohms)
106. RPS permanent field weakening resistance ----- (0.285Ohms)
107. Continuous current permissible through RPS ----- (216Amps)
108. Meter used to check inter turn shorts in EP coils ----- (Surge Comparison Tester)
109. Rating of HRC fuses used in series with RPS ----- ((100A,660V)
110. QVMT cut in pressure 15mm WG cut out ----- (30mm)
111. QVRH cut in pressure 6 to 10mm WG cut out ----- (18mm)
112. QVSL cut in pressure 6mm cut out ----- (18mm Wire Gauge)
113. FYFR ----- (First year Failure Report)
114. In WAG7 loco the BP drop is allowed up to ----- (0.7Kg/cm2 for 5mins.)
115. In WAG7 loco the FP leak hole drop is allowed up to ----- (0.2Kg/cm2 for one minute)
116. In WAG7 loco the Standard setting of RGCP is cut in/cut out ----- (8Kg/cm2(Cut in)/9.5Kg/cm2(cut out))
117. In WAG7 loco the standard setting of SWC cut in/cut out ----- (1Kg/cm2, 0.2Kg/cm2)
118. In WAG7 loco the standard setting of QPH is cut in/cut out ----- (0.6/0.4Kg/Cm2)
119. In WAG7 loco the standard setting of RGAF is cut in/cut out ----- (4.0/3.5)
120. In WAG7 loco the standard setting of P1 is cut in/cut out ----- (4.8/4.6)
121. In WAG7 loco the standard setting of P2 is cut in/cut out ----- (4.6/4.4)
122. In WAG7 loco the standard setting of MR Safety Valve (SS2) is ----- (10.5(+/-1)Kg/Cm2)
123. In WAG7 loco the BP Charging Time through A9 Emergency to release position should be. -----
----- (3 to 6Sec)
124. In WAG7 loco the Brake application/release time through SA9 is ----- (8sec/12sec)

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125. In WAG7 loco the Brake application/release time through A9 for goods loco is----- (15 to 25/25 to 40sec)
126. In WAG7 loco the raising / lowering time of pantograph is .----- (6 to 10sec)
127. In WAG7 loco the Metalised carbon strips in all pantographs are provided **for Current collection and with self lubricating characteristics**
128. In WAG7 loco the Duplex check valve is set at . ----- (4.9Kg/cm² (+/-0.1))
129. In WAG7 loco the minimum pressure required to raise pantograph AM12 is ----- (6Kg/cm²)
130. In WAG7 loco the lowering time of pantograph AM 12 is adjusted through..----- (Throttle Valve)
131. In loco motives Air dryers are provided to adsorb moisture from **MR1 & 2 air**.
132. RDSO SMI NO 197 is tells about.----- (Driving Techniques and use for Proportional brakes to prevent Wheel skidding on Electrical Locomotives)
133. In WAG7 SMGR PRV setting is ..----- (3.5Kg/cm²)
134. RDSO SMI NO 11 is for the ----- (procedure for cleaning the pneumatic pipelines of Electric Locomotives by Blowing through)
135. Periodicity of AOH/TOH schedule for freight locos (WAG-7)----- (2Years)
136. Periodicity of IOH schedule for freight locos (WAG-7)----- (6Years)
137. Periodicity of POH schedule for freight locos (WAG-7)----- (10years +/- 3Months)
138. Periodicity of IC schedule for freight locos (WAG-7)----- (180Days)
139. Periodicity of IB schedule for freight locos (WAG-7)----- (120Days)
140. Maintenance of transformer Tap changer is being done by section in electric loco sheds.----- (E5 section)
141. Over hauling of pneumatic equipments is carried out by ----- section by electric loco sheds. (M3M5)
142. Heavy repairs of bogies mechanical complaints are being carried out by----- Section in electric loco sheds. (M6(Bogie Section))
143. Planning dispatch of locos being done by ----- section in electric loco sheds. (PPO section)
144. Loco failures and analysis is being done by----- section in electric loco sheds. (Investigation section)
145. Troubleshooting & investigation of unusual occurrence is being done by.----- Section in electrical loco sheds. (Investigation Section)
146. Wheel set clearances is being measured during ----- Schedule. (All minor schedules)
147. Traction Motors over hauling is being carried out by ----- ..section in electrical loco sheds. (E3TM section)
148. Electronic PCBs components are checked by----- section in electrical loco sheds. (E7 section)
149. Under frame inspection is carried out by ----- section in electrical loco sheds. (M1 Section)
150. Material procurement of stores, updating of specification and test trail are maintained by----- section in electrical loco sheds (Stock and Non Stock stores section)
151. Full form of the following abbreviations.
1. CLW - Chittaranjan Locomotive Works
 2. COFMOW - Central Organisation for Modernization of Workshops
 3. DGS&D - Director General of supply and disposal
 4. M&P Items - Machinery and Plant items
 5. RSP - Rolling stock program
 6. PAC - Proprietary article certificate
 7. PL No. - Price List no.
 8. RITES - Rail India Technical Economic Services Limited
152. In STB1 signal AMSB_0102 LVCB on L Stands for ----- (Line Voltage Circuit)
153. Horse power of a WAG-9 loco is ----- (6000HP)
154. Gear ratio in WAG-9 loco is ----- (15:77)
155. Type of Traction motors used in WAG9-locos ----- (3Phase Squirrel Cage Induction Motor)
156. Maximum tractive effort of a WAG9 -loco is ----- (458KN)
157. Maximum speed of a WAG9-loco is ----- (100KMPH)
158. Maximum braking effort of a WAG9 -loco is ----- (260KN)
159. Ampere- Hour capacity of a WAG-9 loco battery is ----- (199AH)
160. Parking brakes are provided on wheel no ----- in WAG-9 loco (2,6,7,11 Wheels)
161. Lubricant used in gear cases of three phases locos is ----- (RR 460 Oil)
162. Number of Bus stations available in three phase locos is ----- (7 Bus stations available)
163. For isolating VCD, switch no ----- is to be placed on ----- (237.1 is to be put on Zero position)
164. Switch no 154 has ----- positions. (Three postions, Position-1 for Bogie-1 isolation, Position-II for Bogie-2 Iolation, Position-0 for both bogies in service)

28

165. Purpose of oil cooling blowers in three phase locos is to _____ (to Cool Both TFP oil and SR coolant in Three phase locos)
166. Traction motor mounting arrangements in three phase locos is _____ (On Two mounting Brackets)
167. For raising PT-1 only from both cabs, _____ switch is to be placed in _____ position. (ZPT (Panto selector Switch) to be on One position)
168. For switching over to failure mode operation _____ switch is to be placed in _____ position (154, to 1).
169. Constant speed (BPCS) activates at _____ KMPH and above. (5KMPH)
170. Parking brakes will not apply through BPPB if speed is more than _____ KMPH. (2Kmph)
171. Number of DC to DC converters available in a three phase loco are _____ (4)
172. VCB trips when SR oil temperature rises above _____ degrees. (50°C)
173. In FTIL locos feed pipe coc number is _____ (COC-136)
174. While moving a three phase loco as dead the position of following cocs shall be COC-47 _____, COC-70 _____, COC-74 _____ COC-136 _____. (open, close, close, close)
175. Maximum BC pressure applied when DBC is kept in full service position is _____ (2.5Kg/cm²)
176. The brake release time through DBC in WAG-9 is _____ Seconds. (45 to 60sec)
177. Anti-compounding valves are located near _____ (Cab-1 & 2 ALP side, top of Foot steps)
178. The pressure switch used for vigilance control is _____. (BC pressure switch: Pn.60)
179. The settings of compressor governors in WAG-9 locos are _____ And _____ (8 & 10Kg/cm²)
180. The number paring brakes units available in WAG-9 locos is 4 and available on wheel no.s 2,6,7,11
181. In release position of DBC, BP is charged up to 5.4Kg/cm²
182. KW rating of a Oil Cooling Blower motor in three phase loco is _____ (30KW)
183. Instrument lamps works on 24V/110VDC volts.
184. Rating of head light lamp in three phase locos is _____ volts and _____ Watts. (110VDC, 100W)
185. Capacity of a battery in three phase loco is _____ AH. (199AH)
186. Primary Over current relay in three phase locos is _____ (78A).
187. Power converter is isolated by switch No. _____ (154)
188. Sub-system '06 corresponds to _____ (BUR-1)
189. Power factor in three phase locos is _____ (Unity Power factor)
190. Input and output of potential transformer is _____ and _____ respectively. (25KV, 200V)
191. Oil used in gear case of WAG9 & WAP7 locos RR460.
192. In 3Phase Locomotives, The acronym TCN stands for _____. (Train Communication Network)
193. In M/s BHEL make IGBT locomotives, TM1 firing is controlled by _____. (DCU2)
194. 25A8 module is controlled by _____ M/s BHEL make IGBT SR. (DCU-3)
195. Pre charging contactor in SR is used for _____. (for Reducing Inrush current)
196. When MCB 63.1/2 is tripped, It will consequently lead to _____. (Bogie isolation due to High converter coolant temperature)
197. 411 location indicates _____. (VCU1 Rack)
198. Limits of OHE voltage during working of WAG locomotive is _____ kV to _____ kV. (17.5KV and 30KV)
199. If temperature of SR exceeds _____ degrees then TE/BE is reduced to 0 and exceeds _____ degrees VCB will be off. (64,80)
200. The letters V-O-F on cab buzzer indicates _____. (Vigilance, Overspeed, Fire)
201. Self hold mode means _____. (CEL will remain active for 10Mins)
202. The fault message F0101p1 results in _____. (Main Power Off)
203. S/R interlock activates after attaining a speed of _____ kmph. (10Kmph)
204. In _____ mode, working of VCD can be tested on standstill position in 3 locomotives. (Simulation)
205. ZBV stands for _____. (MU Train BUS)
206. The grease used for lubrication of bearings of FRA 6068 is _____. (SHC-120)

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DESCRIPTIVE QUESTIONS:

Questions on Conventional Locomotives:

1. Draw a schematic diagram of WAG7 loco power circuit from pantograph to rectifier block
2. What are the things to be checked for trouble shooting of following (Attempt any 2)
 - a. MP and EEC failure
 - b. BP not building up in a loco
 - c. Pantos not raising
 - d. All auxiliaries not working
 - e. ICDJ
 - f. DJ tripping after 6th notch
3. Answer any two of the following
 - a) Testing procedure for BP drop vacuum drop
 - b) SMGR striking on notch what are the things to be checked
 - c) Testing procedure for LT Test
 - d) Batteries showing low voltage as soon as load is put on. How to rectify it?
 - e) Brakes not applying in a loco through A-9. Identify the possible troubles.
 - f) Testing procedure for HT Test
4. Give IOH schedule of any two of the following equipment in WAG-7 loco
 - a) Transformer
 - b) Traction Motor
 - c) SMGR
 - d) GR
 - e) Safety Relays
5. (a) What are the normal type defects in WAG-7 bogies and its brakerigging.
(b) Explain overhauling procedure of a Hitachi motors with mounting and dismounting of pinion
6. (a) Explain complete procedure for changing of CBC of a locomotive and name all parts of CBC with a sketch.
(b) What are side wall filters and what is their use in a loco?
7. (a) Explain with a neat diagram the probable causes of DJ Tripping at 5th notch while starting.
(b) Also explain the action required to troubleshoot the loco in such situation.
8. Because of earth fault in traction motor, QOP1 is acting. Explain with a neat diagram the working of the QOP Relay, its troubleshooting and isolation of the defective traction motor from the locomotive.
9. What are the safety items to be checked in traction locos before sending for service?
10. Discuss in detail all probable causes for Autoregression with LSP in MU locos specially WAG7 MU.
11. List out causes of fire in AC locos. Explain the methods and modifications for prevention.
12. Explain the process of brake application in a WAG-7 locomotive through A-9. Name all valves used for brake application and give a simple sketch also.
13. (a) What are the normal type defects in WAG-7 locos and discuss the action to be taken to minimize them.
(b) Explain overhauling procedure of a Hitachi motors with mounting and dismounting of pinion
14. (a) Explain the procedure of initial charging of batteries of a locomotive.
(b) Explain principle of working of battery charger. What are the troubles of a charger?
15. (a) What are the troubles normally experienced in reversors? What is done during its overhauling in TOH/AOH?
(b) What are the benefits in a 150Amps line contactors over 100amps. L.C. and explain overhauling of line contactor?
16. What are the drawbacks experienced in the ARNO fed auxiliary supply system? How and upto what level the provision of Static Converter will overcome those limitations?
17. Presently, what are the problems being faced in measuring lateral and longitudinal clearances in WAG7 locomotives? Specify the instructions, if any, being issued by RDSO?
18. What is the importance of Spring Testing Machine? How much it is helpful in Primary Helical Spring breaking cases in WAG-7 locos? What are the other arrangements suggested to avoid PHS breaking of WAG-7 locos?
19. Explain the meaning and usefulness of Motorized Bogie and its limitations to cut down the AOH IOH schedule time for each class of locomotive?

30

20. Write down the procedure and steps for trouble shooting electric locomotives in the following conditions. Attempt any two.
 - (a) ICDJ
 - (b) All auxiliaries not working
 - (c) DJ tripping after 6th notch.
21. What happens if OHE supply goes while using DBR? Discuss the present system available in electric locomotives and its limitations.
22. What are the instructions to be followed for energizing, denenergizing and in case of fault of electric locomotive with Static Inverter.
23. In case of cattle run over, what the problems being faced by driver in the locomotive. Discuss the modification done by our sheds and its usefulness.
24. Match the following:

| | |
|--------------------|-------------------------|
| Group-A | Group-B |
| a. Rocker arm | 1. Head Light |
| b. Breather | 2. Gear Case |
| c. Mounting Pad | 3. Pantograph |
| d. Servomotor | 4. Twin Beam Head light |
| e. Felt | 5. Relays |
| f. Plunger | 6. Traction Motor |
| g. RTPR | 7. Bogie |
| h. DC-DC Converter | 8. Transformer |
| i. RF | 9. DBR |
| j. Tel-Tel Fuse | 10. RSI |
25. What is the function of ARNO? Describe with the help of diagram how it generate 3-phase AC supply?
26. What are the values of longitudinal and lateral clearances permitted in a WAG-7 locomotive bogies at different axles? What are the instruments used in measuring these clearances?
27. Draw the power circuit diagram of WAG-7 loco and explain the function of each component in this circuit?
28. A WAG-7 loco has come with QOP1 dropping, write the steps to trouble shoot the loco.
29. List out the WAG-7 bogie components.
30. What is ICDJ? Enumerate the reasons for ICDJ in brief?
31. What are the auxiliaries used in WAG-7 loco, list them and explain their functions.
32. What are the various methods/ tests to detect the cracks in steel parts of the loco? Describe the procedure of Ultra Sound Testing to detect the cracks in loco axle?
33. How to investigate the fire accident loco? Write the steps.
34. Describe the functions of the following (any three)
 - (a) Selsyn Transformer (TFP)
 - (b) Voltage Stabilizer for Headlight (RTPR)
 - (c) Rheostatic Braking Unit (DBR)
 - (d) Motor Suspension Unit
 - (e) Center Pivot in WAG-7 loco
35. Write the overhauling procedure of the following equipments (Any three)
 - (a) TM
 - (b) Bogies of WAG-7 loco
 - (c) Compressor
 - (d) GR SMGR
 - (e) DBRs
 - (f) Pantograph
36. Write short notes on the following (Any three)
 - (a) QLM
 - (b) C3W Valve
 - (c) Brake rigging
 - (d) VCB
 - (e) Pantograph
 - (f) SL
37. Draw diagram of Traction Motor power circuit of WAG-7 locomotive with TM connected in parallel and provided with field weakening resistances.

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38. Indicate the function and setting of the following safety / protection relays.
a) QRSI b) QE c) QD d) Q-30 e) QLM
39. What are the types of maintenance and overhauling schedules followed for AC locomotives?
39. Name the different sections and activities done in each section as followed in your shed.
40. Indicate the attention given during IC for the following (any two)
- Tap Changer
 - Pantograph
 - Wheel and axles
 - Axle Boxes
 - Traction Motor
 - Main Compressor
41. Draw neat circuit diagram of power circuit of WAG7 loco with all components ratings.
42. Explain the purpose of earthing of battery -ve intentionally and the problem of battery -ve cable?
43. Draw the DJ control circuit of WAG7 loco and explain how DJ will hold in HT.
44. Write the procedure for overhauling of Hitachi TM?
45. Explain the purpose of providing earths fault protection relay and also explain how earth fault relay energizes, with a diagram, and action to be taken by driver if QOP or QOA acts and also the preventive measures to be taken during normal maintenance schedules?
46. Write the charging and discharging procedure to be followed for commissioning of new batteries?
47. Write about all the safety relays, their ratings and how they cause tripping of DJ in the event of abnormality in loco?
48. Draw the tap changer circuit of WAG7 loco to explain how progression coil will be energized and how the notch-by-notch progression takes place?
49. What are the major defects in TFP and describe briefly the cause and their remedial action?
50. What are the major failure in TM and describe briefly the causes and their remedial action?
51. What are the major improvements in Traction motor design?
52. What are the major failures of Auxiliary motors? What is the process for VPI to Aux. Motors and the advantages of VPI?
53. What are the advantages of microprocessor based control system of locomotive than the conventional control system?
54. Draw flow chart of the Traction Motor overhauling and what are the various tests to be done after overhauling of TM?
55. What do you mean by the condition monitoring of the equipment. Discuss briefly the various condition monitoring techniques?
56. What are the reasons for ICDJ and discuss their remedial measures?
57. List out the reasons for auto regression and their remedial action?
58. What do you mean by destructive and non-destructive tests. Describe briefly the various destructive and non-destructive tests?
59. Describe the trouble shooting during the CCPT melting?
60. Describe the trouble shooting for QOP and QOA?
61. Draw the flow chart of ARNO overhauling. What are the checks to be done during overhauling of the ARNO?
62. In WAG 7 describes the function of the following valves?
- A9 SA9 brake valve
 - C2 (BP&BC) relay valve.
63. Draw the neat diagram of pantograph indicates the part. Give the reason for panto entanglement and explain its remedies
64. Why Air dryer is provided in locomotives and Explain its function and advantages in loco?
65. Draw the pneumatic circuit of A9, SA9, C2W (BP&BC) and Explain it briefly
66. What are the improvement measures which should be taken in shed to avoid the pneumatic failures?
67. Explain briefly about the various schedule maintenance done during IA, IB, IC1 IC2 .
68. Explain briefly about the various schedule maintenance done during AOH/TOH&IOH
69. What are the must check pneumatic item at the time of dispatch?
70. How to weld a bogie frame crack?
71. What is the trip inspection and its periodicity.
72. What attention will be paid during Trip Inspection on Bogie items such as Brake gear, T.M axle suspension bearings, T.M gear case, Axle roller bearings, and Suspension springs.

73. What is the length of the locomotive for WAG-7?
74. What is the Gear ratio of a wheel set for WAG-7?
75. What is the diameter of the new wheels sets for WAG-7?
76. What is the lower limit of the wheel diameter for condemnation/Re-discing?
77. What are the limits of the Flange wear and Root wear?
78. What is the distance to be maintained between wheel disc and the brake block?
79. What is L type of brake blocks Advantages?
80. What is wheel to wheel distance of wheel set?
81. What is the height of the sandwich mounting pad?
82. What is the diameter of an Axle?
83. What is the journal dia of an axle?
84. What are the axle box clearances of a bogie?
85. What is the allowable wheel diameter difference on the same axle?
86. Wheel diameter difference on two axles of the same bogie?
87. Wheel diameter difference on bogie to bogie?
88. What is the height of the buffer?
89. What is the height of the rail guard?
90. What is Brake cylinder piston travel when brakes are in applied condition?
91. What is the height of the center pivot?
92. What is the height of the side bearers?
93. What are the different types of gauges used in Indian Railways?
94. What is the stopper to stopper distance of a wheel set?
95. What is B H N?
96. What is the tightening sequence of the bolts for TM axle cap?
97. What is the MSU? Explain with major dimensions?
98. What is the capacity of each gear case?
99. What is the capacity of an each axle cap?
100. What is CBC?
101. What is the type of suspension in Co-Co bogie?
102. What is stress?
103. How to find out a bogie crack?
104. The Traction Motor nose-suspension lugs on the bogie frame transoms is how much?
105. What are the various types of records being used for maintenance of electrical locos at loco sheds?
106. What are the various sections in Electric Loco Shed for carrying out various inspections and repair activities on Electrical locos?
107. How to report accidents?
108. How accident enquires are conducted?
109. What is the periodicity of various schedules for freight and coaching locos and what is the periodicity of schedules adopted by SC.Rly?
110. If there was any fault in the QPH/QVSL1/QVS12 /QVMT1/QVMT2 or concerned motor is defective which relay de-energizes first and how much time will be taken for tripping DJ?
111. During wheel slipping which relays acts and what indications will be observed?
112. Classification of loco failures.
113. Types of maintenance schedules being carried out in Electrical loco shed:
114. Types of maintenance schedules being carried out in trip sheds:

ANSWER THE FOLLOWING QUESTIONS of Three Phase locomotives:

115. Describe the improved technical features available in three phase locos over conventional locos?
116. Describe the types of brakes available in three phase locos?
117. Describe the advantages of three phase locos over conventional locos?
118. Describe the positions of automatic train brake (A-9) handle in three phase locos?
119. Write the trouble shooting procedure for fault message F01 04 P1 i.e. catenary voltage out of range even though OHE voltage is available within the range?
120. Draw the schematic diagram of WAG-9 loco power circuit?
121. Describe the sub-systems available in three phase locos?
122. Name the various maintenance schedules being followed for three phase locos and indicate their periodicities for WAG9 locos?
123. Draw and explain briefly the BP charging through A9 in three phase loco?
124. Describe the loads of auxiliary converters and their load sharing when auxiliary converter No.1 is isolated?
125. Name the various rotary switches available in SB-1 panel? Indicate their positions and significances?
126. Draw the line diagram of Potential Transformer (PT) circuit and explain briefly?
127. Name the various major and minor maintenance schedules being followed in three phase locos and indicate their periodicity for WAG-9 locomotives?
128. Draw the line diagram of oil cooling arrangement (TFP & SR) in three phase locos and explain briefly?
129. A) How many Bus stations are there in three phase locos and what are they?
b) How many processor cards available in 3 phase locos and indicate the processor cards available in power converter and vehicle converter unit-1
130. A) How many sub-systems are available in three phase locos and what are they?
b) Name the rotatory switches available in SB-1 panel? Indicate their positions and its significance?
131. Write the trouble shooting procedure for the following?
a) BUR-1 and further BUR-2 are getting isolated sequentially with inverter over current/DC link over current and further main power is getting isolated?
132. In how many ways a traction converter can be isolated, indicate?
133. Describe the procedure for viewing the background data in the DDS?
134. What are the different types of speed sensors used in WAG9/WAP7 (IGBT) locomotives? Briefly explain their features and relative merits and demerits?
135. Briefly explain the working of AFI in WAG9/WAP7 locomotives with E7 brake system?
136. Briefly explain the role of E70 relay valve in E-70 brake system? How many different ways the message Brake Electronics Fail can be generated in 3 locomotives? Briefly explain any three possibilities with root cause?
137. What are the key differences between the maintenance of HS15250A and FRA6068?
138. What are the different ways of resetting Vigilance cycle of VCD in 3 locomotives? What action takes place when BPEMS switch is pressed?
139. How many different ways emergency braking can take place in 3 locomotives?

Match the following (3 Locomotives)

| 1. Sub System | Sub System Number |
|----------------------|-------------------|
| a) BUR3 | 1)3 |
| b) SR2 | 2)2 |
| c) HF | 3)10 |
| d) FDU | 4)8 |
| e) Brake Electronics | 5)9 |
| | 6)4 |
| | 7)15 |

Ans: a-4, b-1, c-6, d-7, e-3

| 2. Contactor Number | Description |
|---------------------|---|
| a) 8.1 | 1) Contactor converter pre. Charging |
| b) 12.3/1 | 2) Harmonic filter contactor |
| c) 8.41 | 3) Capacitor bank DC link |
| d) 15.5/2 | 4) Pre charging resistance of converter |
| e) 14/2 | 5) Contactor for discharging resistor |

Ans: a-2, b-1, c-5, d-3, e-4

34

3. Sensor Number Description
- a) 6.1 1) Current sensor drive inverter
 - b) 3 2) Primary current transformer
 - c) 18.5 3) Primary voltage transformer
 - d) 18.2 4) Voltage indicator DC link
 - e) 15.7 5) Current sensor line converter

Ans: a-2, b-3, c-1, d-5, e-4

4. MCB Corresponding Auxiliary
- a) 59.1 1) MCB of Scavanger for MRB
 - b) 53.1 2) MCB for OCB
 - c) 56.1 3) MCB for TMB
 - d) 47.1 4) MCB for TFP-MPH
 - e) 63.1 5) MCB for MCP
 - 6) MCB for SRMPH

Ans: a-2, b-3, c-1, d-5, e-6

5. MCB Description
- a) 100 1) MCB for loco control electronics
 - b) 110 2) MCB for Battery charger input
 - c) 112.1 3) MCB for Machine room lighting
 - d) 112 4) MCB for Battery
 - e) 310.4 5) MCB for Battery charger output

Ans: a-4, b-2, c-5, d-1, e-3

6. Component Description
- a) ZTEL 1) Asst. Loco pilot desk Lamp
 - b) ZK 2) Switch for Max. Traction Limitation
 - c) LSCE 3) DC link
 - d) ZLI 4) Switch instrument lighting
 - e) ZLDA 5) Indication lamp for over temp.CEL

Ans: a-2, b-5, c-1, d-4, e-3

7. Pneumatic Component Description
- a) 70coc 1) FP charging coc
 - b) 74 coc 2) BP charging coc
 - c) 47 coc 3) Emergency exhaust coc
 - d) 136 coc 4) Dead Loco AR charging coc

Ans: a-3, b-5, c-4, d-2, e-1

8. Pressure Switch Description
- a) 172.2 1) Pressure switch emergency brake.
 - b) 269.4 2) Pressure switch low MR
 - c) 269.6 3) Pressure switch main compressor (8Kg)
 - d) 269.1 4) Pressure switch loco brake
 - e) 269.2 5) Pressure switch brake cylinder.

Ans: a-2, b-3, c-5, d-4, e-1

9. Bearing type Location
- a) NU330 1) CE bearing for HS15250 A
 - b) NJ320 2) PE bearing for HS15250 A
 - c) NJ324 3) DE bearing for FRA6068
 - d) NU2236 4) NDE bearing for FRA6068

Ans: a-2, b-3, c-4, d-1

10. No. of BURs working Condition of Load sharing contactors
- a) All BURs in service 1) 52/3, 52/4 & 52/5 closed
 - b) Only BUR1 Isolated 2) 52/1, 52/3 & 52/5 closed
 - c) Only BUR2 Isolated 3) 52/4, 52/2 & 52/5 closed
 - d) Only BUR3 Isolated 4) 52/1, 52/3 & 52/4 closed

Ans: a-3, b-2, c-5, d-1, e-4

| 11. Component | Location |
|----------------------------|--------------------|
| a) MCP | 1) Machine Room |
| b) Filter block resistance | 2) Under gear item |
| c) FDU | 3) CAB item |
| d) DBC | 4) Roof item |

Ans: a-2, b-4, c-1, d-3

| 12. Node Number | Action |
|-----------------|---------------------------------|
| a) 570 | 1) After raising PT |
| b) 550 | 2) After closing DJ |
| c) 596 | 3) After selection of direction |
| d) 504 | 4) Self-Test complete |
| e) 590 | 5) After taking Throttle |

Ans: a-2, b-4, c-1, d-3

| 13. Equipment Number | Description |
|----------------------|----------------------------------|
| a) 47 | 1) Contactor for MCP |
| b) 47.1 | 2) MCP |
| c) 47.2 | 3) MCB for MCP |
| d) 47.2A | 4) Snubber circuit for contactor |

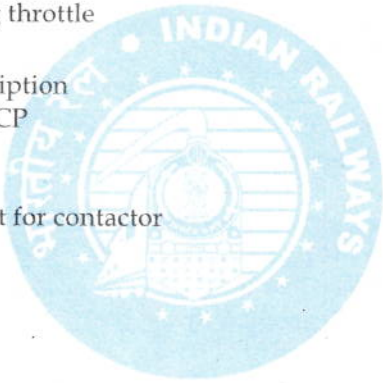
Ans: a-2, b-4, c-1, d-3

| 14. Node Number | Action |
|-----------------|---------------------------------|
| a) 570 | 1) After raising PT |
| b) 550 | 2) After closing DJ |
| c) 596 | 3) After selection of Direction |
| d) 504 | 4) Self Test complete |
| e) 590 | 5) After Taking throttle |

Ans: a-2, b-3, c-1, d-4

| 15. Equipment Number | Description |
|----------------------|----------------------------------|
| a) 47 | 1) contactor for MCP |
| b) 47.1 | 2) MCP |
| c) 47.2 | 3) MCB for MCP |
| d) 47.2A | 4) Snubber circuit for contactor |

Ans: a-2, b-3, c-1, d-4



PART-C (STORES, Establishment, DAR)

1. NS Indent form No. S1302 is used for value up to -----(10,000/-)
2. To draw the stocked item form No. -----to be used(S-1313)
3. For which value indent is to be got vetted above Rs.----- (Above Rs.2.5Lakhs for non safety items, above Rs.10Lakhs for safety items)
4. During the suspension period, the suspended employee is entitled for subsistence allowance instead of monthly salary. For drawal of subsistence, the charged employee is required to submit to Disciplinary authority a non-employment certificate in prescribed form. The form No. is -----.(SF-III)
5. The Disciplinary Authority desires to appoint an inquiry officer to inquire into misconduct / misbehavior of the charged employee after issue of majority penalty charge sheet and on consideration of written statement of defense of CE, the communication of nomination of inquiry officer ordered in form No. -----(SFVII)
6. For Imposition of major penalty, a charge sheet is issued to Railway Servant. What is standard form No.----- (SF-V)
7. A Rly.Servant was convicted by a Court of law and sentenced him for imprisonment for a period exceeding 48 hours. But he has not informed his conviction to the immediate Controlling officer. After a week local police informed the whereabouts of the Railway servant. The Railway Servant shall be placed under Deemed Suspension from the date of his conviction. The standard form ----- is to be issued to place a Railway servant under Deemed suspension. (SF-I)
8. The Railway servant while attending AOH/TOH locos, he has not devoted his attention fully. As a result, a failure had taken place owing to his negligence. Such negligence on the part of a Railway servant can be taken up under rule No. ----- (Rule no.22(RS Rules 66)
9. The period of LAP/LHAP sanctioned by an independent supervisory official in scale Rs. 5500-900 and above to the staff of safety categories per annum shall not exceed ----- days.(45days)
10. Powers of Suspension to an Assistant Officer in respect of Group C D staff upto and including pay scale of Rs. ----- (G.P. 1800/- (Gr.D)
11. Suspension is not a ----- (penalty)
12. Out of minor penalties under D&AR, the lowest penalty shown in Rule 6 is ----- (CENSURE)
13. An order passed by an inquiring authority in the course of an enquiry under Rule against which ----- appeal lies. (Rule-6)
14. Should a Government servant require obtaining prior permission to join a chit fund? (YES)
15. The limitation of time for an appeal in D&A Rules, 1968 is ----- (Ans 45 days)
16. The inquiring officer is nominated by ----- in D&A Rules, 1968. (D.A.)
17. ----- Days time is to be allowed to the charged employee for submitting his written statement of defence (10days)
18. If the charged official does not appear before the Inquiry officer, the inquiry may be held ----- (Exparte decision)
19. The inquiry officer during inquiry has to first examine witnesses of ----- (Charges of Employee)
20. What is full form of D&AR?. **Disciplinary & Appeal Rules-1968**
21. If on the date of retirement of an employee, he is neither suspended nor charge sheet issued to him, then proceedings against him can be instituted only with the approval of ----- (DRM)
22. The recommendations by the complaint committee in respect of offence of sexual harassment of working women in her work place is ----- on D.A. (3.C, Railway service conduct Rules-1966)
23. If an employee, after his retirement, is found guilty in judicial proceedings for an offence committed during his service a cut in pensioner benefits can be imposed by the ----- (President of India (union Public service commission)
24. Hindi Diwas is celebrated every year on ----- (September-14th)
25. Under the Hours of Employment Regulations, the artisan staff working in ELS is classified as -----.(Continuous)
26. For the purpose of implementation of official language, the Union of India is divided into ----- regions. (A, B, C)
27. What is the qualifying service for a Railway servant to retire from service voluntarily? (20years)
28. Special casual leave on sports account for participation in international events can be sanctioned by DRM is ----- days. (120Days)
29. The powers for transfer of Group C&D staff on Inter Railway basis lies with ----- (DRM)
30. The powers for transfer of Group C & D staff in case of inter divisional transfer lies with ----- (DRM)

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31. The total deductions including payment to co-operative societies from an Employed person shall not exceed _____% of such wages.(30%)
32. The wage period under the Payment Wages Act shall not exceed _____(30DAYS)
33. The over-time allowance is payable in case of beyond rostered hours _____time of ordinary wages (Double)
34. _____the ordinary wages will be paid to an employed person, if he employed more than statutory hours. (1 ½ times)
35. Amplify the abbreviation S.O.P. _____.(Schedule of Powers)
36. Amplify the abbreviation ACR _____.(Annual Confidential Report)
37. Conducting of an inquiry is not necessary under D&A Rule No. _____ (Rule no. 9 to 13)
38. In case the penalty in a case is adequate, the appellate authority _____ the penalty imposed by the DA.(Reduce)
39. If the penalty ordered is severe with reference to the nature of misconduct, the Appellate authority can _____ the penalty imposed by DA. (Enhance)
40. If the penalty imposed by DA is inadequate, the Appellate Authority can _____ the penalty ordered. (Enhance)
41. The Railway Servants Discipline and Appeal Rules were made as per the proviso to Article _____ of the Constitution. (309)
42. The D&A Rules are not applicable to _____ staff. (RPF staff)
43. Holding of inquiry is _____ necessary in case the charged employee admitted all the articles of charges framed against him. (Not)
44. In D&A Rules, the Commission means _____ (union public service commission)
45. Revisionary powers on an appeal at zonal level can be exercised without restriction of any time limit by _____. (General Manager)
46. The Railway Servant may for the purpose of his defense submit the written statement of defense and a list of _____ to be examined on his behalf. (List of Witness)
47. What is the standard form to be issued to a Railway Servant for imposing minor penalty charge sheet.(SF-II)
48. The Inquiry officer should be sufficiently _____ in rank to the charged official. (Higher)

DESCRIPTIVE TYPE QUESTIONS(Questions on DAR, Stores, Personnel General matters):

- 1)What are the purchase powers of officers direct and through tender committee?
- 2)What are the types of Rolling Stock programme and the process to be followed?
- 3) As a Supervisory official, what are the techniques for conducting an inquiry in D A Rules, 1968?
- 4) Explain the procedure for imposition of Major penalty under D&A Rules 1968?
- 5)What are the minor penalties that can be imposed by an independent supervisor in respect of staff working under him?
- 6)The provision of factory Act, 1948 are not applicable to running sheds on Indian Railways. The staff working in Sheds are governed by the provisions of HOER. Specify various categories under HOER with periodic rest and duty roster hours applicable to them.
- 7) What are the constitutional provisions in respect of official language?
- 8) Please specify the documents under section 3.3 of O.L. Act. 1963?
- 9) Please specify the rules applicable for implementation of Raja Bhasha ?
- 10) In working places for progressive use of Hindi, what are the suggestions you can suggest that can be implemented ?
- 11) What are the deductions from wages of an employee that can be made?
- 12) What are the provisions under rule 14 of D A Rules, Act 1968
- 13)(a) Describe various steps for procurement of non-stock item of value
(i) less than Rs. 2,50,000/- (ii) more than Rs. 2,50,000/-
(b) Describe the steps for imposition of minor penalty.
- 14) (a) As a Enquiry Officer in SF-V case,how will you proceed?
(b) What are the various types of Passes over Indian Railways.
- 15) Write short notes on any two of the following
(a) Non-stock item procurement procedure through manual
(b) Scrap disposal
(c) Raising a special demand
(d) Imprest stores

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16) What is the difference in stock and non-stock items? Describe the procedures for procurement of stock and non-stock items?

17) Write short notes on

- Minor Penalty
- Continuous Category as specified in HOER
- Imprest stores
- Procurement of T&P items.

QUESTIONS ON OFFICIAL LANGUAGE

(1) (a) How use of Hindi can be popularized amongst running staff.

(b) Write the full form of the following in Hindi

- (i) ADRM- अपर मंडल रेल प्रबंधक (ii) APO- सहायक कार्मिक अधिकारी. (iii) DME- मंडल यंत्रिक इंजीनियर
(iv) Sr.DSO-वरिष्ठ मंडल सुरक्ष अधिकारी (v) Sr.RBA- वरिष्ठ राजभाषा अधिकारी

(2) What is the Official Language of India? Under which region, does the state of TELANGANA fall?

(3) (a) Write suitable English words for the following

- गुणवत्ता -----QUALITY
- उपयोगिता-----USEFUL
- अनुरक्षण-----MAINTENANCE
- सहायक ----- AUXILIARIES
- उद्देश्य-----PURPOSE

(b) Write correct Hindi designations for the following

- ADRM ----- अपर मंडल रेल प्रबंधक
- Sr.DAO ----- वरिष्ठ मंडल लेखा अधिकारी
- Sr.DPO----- वरिष्ठ मंडल कर्मिक अधिकारी
- Sr.DSO ----- वरिष्ठ मंडल सुरक्ष अधिकारी
- Dy.CEE ----- उप मुख्य विधुत इंजीनियर

4 (a) राजभाषा अधिनियम, 1963 (यथ संशोधित 1967) की धारा 3 (3) में किन किन सरकारी प्रयोजनों के लिए अंग्रेजी के साथ हिंदी का प्रयोग अनिवार्य है ?

(b) Write correct Hindi designations for the following

- SDGM----- वरिष्ठ उप महा प्रबंधक
- COM ----- मुख्य परिचालन प्रबंधक
- CSO ----- मुख्य सुरक्ष अधिकारी
- CSTE ----- मुख्य सिग्नल व दूर संचार इंजीनियर
- Dy.CEE ----- उप मुख्य विधुत इंजीनियर

5. Translate into English

- विद्युत संरक्षण-----ELECTRICAL PROTECTION/SAFETY
- अनुरक्षण -----MAINTENANCE
- आग दुर्घटना----- FIRE ACCIDENT
- उपस्थिति रजिस्टर-----ATTENDANCE REGISTER
- परीक्षा----- EXAMINATION

6. Translate into Hindi

- Electrical Chargeman----- विधुत चार्ज मैन
- Earthing----- एअर्थिंग
- Divisional Railway Manager----- मंडल रेल प्रबंधक
- Approved----- मंजूरी की
- Casual Leave----- समन्य छुट्टी