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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

2. Taps on autowinding of TFP are provided for ( )
   (a) speed control
   (b) protection from surges
   (c) shorting of windings
   (d) avoiding overloading of TFP

3. QOP relay is used to detect ( )
   (a) Earth fault in auxiliary circuit
   (b) Over current
   (c) Earth fault in power circuit
   (d) Surges

4. For converting a.c. to d.c., following equipment is used in locos ( )
   (a) Transformer
   (b) Smoothening reactor
   (c) Silicon Rectifier
   (d) Circuit breaker

5. Which one of the following is not a safety item ( )
   (a) ACP Unit
   (b) Hand brake
   (c) Head Light
   (d) Corridor Light

6. The maximum rpm of a Hitachi Traction Motor is ( )
   (a) 895 rpm (b) 1000 rpm (c) 1100 rpm (d) 1250 rpm

7. MVRH is a ( )
   (a) D.C.Motor
   (b) A.C.Motor
   (c) Universal Motor

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

9. KVA rating of TFP used in WAG-7 & WAP4 locos is ( )
   a) 3460 KVA
   b) 3900 KVA

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c) 5400 KVA
d) 6000 KVA

10. In Traction Transformer ( )
a) A33-A0 is Auto Transfer Winding
b) A34-A0 is Primary Winding
c) a0 – a1 is Auxiliary Winding
d) All are correct

11. ARNO is used for ( )
a) cooling T.M.
b) converting 1Φ to 3 Φ a.c.
c) cooling TFP oil
d) converting a.c. to d.c.

12. For changing direction of loco movement, following is used ( )
a) CTF
b) Reverser
c) Shunting contactor
d) Pantograph

13. ( )
In WAG-7 loco is used
a) SL-30 b) SL-40 c) SL-42 d) None

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

15. BA are used for powering ( )
a) ARNO convertor
b) Traction Motor (TM)
c) Cab heater
d) Auxiliary compressor (MCPA)

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

17. Maximum air pressure in electric loco brake cylinder with A9 application is ( )
a) 2.5 kg/cm^2
b) 3.5 kg/cm^2
c) 2.0 kg/cm^2
d) 5.0 kg/cm^2

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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

19. Gear ratio of WAP4 loco is _____ ( )
    a) 18 : 14
    b) 23 : 58
    c) 17 : 57
    d) 16 : 65

20. Maximum allowed wheel dia variation in service ( )
    a) on same axle is 2.5 mm
    b) one same bogie is 8 mm
    c) Both (a) & (b)
    d) None

21. ( )
    The requisition No. for a N.S.item is
    a) S 1313
    b) S 1302
    c) S 1315
    d) S 1305

22. Maximum Tractive effort of a loco is the ( )
    a) maximum power developed by the loco
    b) maximum torque developed by the loco at 50 KMPH
    c) maximum starting torque developed by the loco without wheel slipping
    d) None is correct

23. Relay to detect abnormalities in TFP is ( )
    (a) QRSI
    (b) QOP
    (c) QLM
    (d) QOA

24. For protection of traction motors against over voltage, following relay is used ( )
    (a) QOP (b) Q20
    (c) QD (d) QRSI

25. AFL circuit works in case of ( )
    a) train parting
    b) chain pulling
    c) brake application
    d) both (a) & (b)

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26. The insulation class of an auxiliary motor is ( )
    (a) H Class
    (b) B Class
    (c) F Class
    (d) C Class

27. Panto raising time is adjusted between ( )
    (a) 6 to 10 sec.
    (b) 5 to 10 sec.
    (c) 5 to 8 sec.
    (d) None

28. For creating vacuum required for pneumatic brake system following equipment is used ( )
    a) compressor
    b) exhauster
    c) VA-1B valve
    d) ARNO

29. In a WAP loco, the no. of brake cylinders are ( )
    (a) 8 (b) 10 (c) 12 (d) 16

30. Bolster is used in the following class of locos ( )
    a) WAG5
    b) WAM4
    c) WAP4
    d) WAG7

31. MU2B and F1 Selector Valves are used to isolate ( )
    a) rear loco
    b) A9 and SA9 of rear loco
    c) RSI block in MU operation
    d) None of the above

32. DP Test is done to detect ( )
    (a) Acetylene content in oil
    (b) Methane level
    (c) inside void in axle
    (d) surface crack

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

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34. QLM setting of WAG-7 loco is ( )
a. 9 Amp. b. 8 Amp. c. 7 Amp. d. 10 Amp.

35. Noise / vibration level of bearing is measured in ( )
a. DB b. dB c. GB d. BD

36. EFDG coil of DJ in WAG-7 loco isR4 ( )
a. holding coil b. closing coil c. None
d. Both (a) & (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

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

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

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.

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

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

43. What is the voltage of OHE feeding power to WAG-7 loco ( )
a. 25 KV AC b. 1500 V DC c. 11 KV AC d. 440 V AC

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44. MVRH is provided to cool the ( )
    a. Traction Motor
    b. RSI block
    c. TFP Radiator
    d. Compressor

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

46. Loco brake applies ……..kg pressure ( )
    a. 2.0 b. 3.5 c. 1.5 d.7.0

47. "Back lash" term is related to……. ( )
    a. TFP b. Battery c. CBC d. Gears

48. There are …….. nos. of main poles (MP) in a Hitachi TM. ( )
    a. 6 b. 4 c. 2 d.12

49. The lubricant used in suspension bearing of a TAO motor is…….. ( )
    a. 170-T b. SP57 c. Servo RR3 d. Mineral oil

50. Multimeter is used to measure …… ( )
    a. voltage only
    b. current only
    c. resistance only
    d. all of the above

51. WAG-7 loco is using …….. type of bogies ( )
    a. flexicoil co-co
    b. fabricated co-co
    c. trimounted co-co
    d. any of the above

52. Loco TFP has …….. Nos. of taps for voltage control ( )
    a. 16 b. 32 c. 12 d. depending upon the type of loco

53. What is the ratio of percentage load sharing between center pivot and side bearers in WAG-5 loco ( )
    a. 60:40 b. 50:50 c. 40:60 d.70:30

54. 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

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55. Sand is used in locomotives to avoid……. ( )
    a. wheel skidding
    b. wheel slipping
    c. brake failure
    d. all the above

56. Leakage Test is conducted to find out leakage in ( )
    a. CP b. MR c. BP d. whole loco.

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Fill in the blanks

1. Pinion and bull gear ratio of a WAG 7 loco is ----------
2. The axle load of WAG 9 is ----------
3. For WAG-7 Hitachi loco, gear ratio ---------- gives best performance for graded section.
4. The energy is consumed by an electric loco per thousand GT KM is ---- KWh
5. Capacity of battery provided in electric loco is _____A.H.
6. Full form of MVRH is _____
7. Primary Helical Spring is used in _____ type of loco.
8. Thickness of Flange at 5 mm Flange wear is _____
9. RPS is used to _____ field of Traction Motor.
10. IP Coil is used to improve _____
11. Higher gear ratio is used for _____ starting torque.
12. Bibby Coupling is provided to couple _____.
13. DGA stands for _____
14. Equivalent resistance of 5Ω Resistor and 3Ω Resistor connected in parallel is _____
15. Type of Pantograph used for WAG-7 loco is _____
16. RSI block is _____ Wave Rectifier.
17. Q-20 Relay is a _____
18. Bo-Bo bogies have _____ no. of axles in each bogie.
19. In DBR operation, traction motor works as _____
20. AM12, AM92 are the type of _____
21. Every loco should be provided with _____ nos. of Fire Extinguishers
22. Brake application and release timing through A-9 should be ____ to ____ sec. While dispatching the loco from shed.
23. Through SA9 _____
24. BC Piston travel should be _____ to _____ mm for WAG7 locos.
25. Leak hole test is conducted for _____ brake system.
26. With two CPs in working loco alone, the BP pressure should reach within _____ secs.
27. EP-90 is the type of _____ made by _____ firm.
28. _____ switch is provided to switch off signaling lamp of rear loco in MU.
29. Rating of HS15250A is _____KW
30. Minimum air pressure required to raise the panto is _____ kg/cm^2
31. Opening time of VCB should be less than _____ m/sec.

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Descriptive Questions:

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)
   1. MP and EEC failure
   2. Vacuum not building up in a loco
   3. Pantos not raising
   4. All auxiliaries not working
   5. ICDJ
   6. DJ tripping after 6th notch

3. Answer any two of the following
   1. Testing procedure for BP drop & vacuum drop
   2. SMGR strucking on ½ notch – what are the things to be checked
   3. Testing procedure for LT Test
   4. Batteries showing low voltage as soon as load is put on. How to rectify it?
   5. Brakes not applying in a loco through A-9. Identify the possible troubles.
   6. Testing procedure for HT Test

7. Give IOH schedule of any two of the following equipment in WAG-7 loco
   1. Transformer
   2. Traction Motor
   3. SMGR
   4. GR
   5. Safety Relays

8. (a) What are the normal type defects in WAG-7 bogies and its brake rigging.

   (b) Explain overhauling procedure of a Hitachi motors with mounting and dismounting of pinion

9. (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?

10. (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.

11. 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.

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12. What are the safety items to be checked in traction locos before sending for service?

13. Discuss in detail all probable causes for Autoregression with LSP in MU locos specially WAG7 MU.

14. List out causes of fire in AC locos. Explain the methods and modifications for prevention.

15. 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.

16. (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

17. (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?

18. (a) What are the troubles normally experienced in reversors? What is done during its overhauling in AOH?
    (b) What are the benefits in a 1500 Amps line contactors over 1000 amps. L.C. and explain overhauling of line contactor?

19. 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?

20. 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?

21. 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?

22. Explain the meaning and usefulness of Motorized Bogie and its limitations to cut down the AOH & IOH schedule time for each class of locomotive?

23. Write short note on the following:
    1. Additional Sander
    2. Nylon Washer
    3. Modified Trunion
    4. Composite Brake Block
    5. Swan Neck Sander

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24. Write down the procedure and steps for trouble shooting electric locomotives in the following conditions. *Attempt any two.*
    1. ICDJ
    2. All auxiliaries not working
    3. DJ tripping after 6th notch.

25. What happens if OHE supply goes while using DBR? Discuss the present system available in electric locomotives and its limitations.

26. What are the instructions to be followed for energizing, denergizing and in case of fault of electric locomotive with Static Inverter.

27. In case of cattle run over, what the problems being faced by driver in the locomotive. Discuss the modification done by our sheds and it's usefulness.

28. 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

29. What is the function of ARNO? Describe with the help of diagram how it generate 3-phase AC supply?

30. 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?

31. Draw the power circuit diagram of WAG-7 loco and explain the function of each component in this circuit?

32. A WAG-7 loco has come with QOP1 dropping, write the steps to trouble shoot the loco.

33. List out the WAG-7 bogie components.

34. What is ICDJ? Enumerate the reasons for ICDJ in brief?

35. What are the auxiliaries used in WAG-7 loco, list them and explain their functions.

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36. 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?

37. How to investigate the fire accident loco? Write the steps.

38. 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

39. 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

40. Write short notes on the following: (Any three)
    a. QLM
    b. C3W Valve
    c. Brake rigging
    d. VCB
    e. Pantograph
    f. SL

41. a) What are the features of dual brake system
    b) Name essential valves used in pneumatic circuit of dual brake system

42. Draw diagram of Traction Motor power circuit of WAG-7 locomotive with TM connected in parallel and provided with field weakening resistances.

43. Indicate the function and setting of the following safety / protection relays.
    a) QRSI b) QE c) QD d)Q-30 e) QLM

44. a) What are the types of maintenance and overhauling schedules followed for AC locomotives.?
    b) Name the different sections and activities done in each section as followed in your shed.

45. Indicate the attention given during IC for the following (any two)
    a) Tap Changer
    b) Pantograph
    c) Wheel and axles
    d) Axle Boxes
    e) Traction Motor
    f) Main Compressor

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Questions on DAR, Stores, Personnel & General matters

1. (a) Describe various steps for procurement of non-stock item of value
   (i) less than Rs. 1,00,000/- (ii) more than Rs. 1,00,000/-
   (b) Describe the steps for imposition of 'minor penalty'.

2. (a) As a Enquiry Officer in SF-V case, how will you proceed?
   (b) What are the various types of Passes over Indian Railways.

3. Write short notes on any two of the following
   a. Non-stock item procurement procedure
   b. Scrap disposal
   c. Raising a special demand
   d. Imprest stores

4. What is the difference in stock and non-stock items? Describe the procedures for procurement of stock and non-stock items?
5. Write short notes on
   a) Minor Penalty
   b) Continuous Category as specified in HOER
   c) Imprest stores
   d) 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 (ii) APO (iii) DME
   (iv) Sr.DSO (v) Sr.RBA

2. What is the Official Language of India? Under which region, does the state of Andhra Pradesh fall?
3. (a) Write suitable English words for the following
   (i) gauNava%ta –
   (ii)]pyaaoigata –
   (iii) AnaurxaNa –
   (iv) AnauYaaMigak –
   (v)]WoXya –

   (b) Write correct Hindi designations for the following

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(i) ADRM –
(ii) Sr.DAO –
(iii) Sr.DPO–
(iv) Sr.DSO –
(v) Dy.CEE –

4. (a) rajaBaaYaa AiQainayama, 1963 (yaqa saMSaaoiQoat 1967) kI Qara 3 (3) maoM ikna ikna sarkarI p`yaaojanaaoM ko ilae AMg`aojaI ko saaqa ihndI ka p`yaaoga Ainavaaya- hO ?

(b) Write correct Hindi designations for the following

1. SDGM–
2. COM –
3. CSO –
4. CSTE –
5. Dy.CEE –

5. Translate into English

(i) ivaVut saMrxaa
(ii) AnaurxaNa
(iii) Aaga du-GaTnaa
(iv)]pisqat rijasTr
(v) prIxaa

6. Translate into Hindi

(i) Electrical Chargeman
(ii) Earthing
(iii) Divisional Railway Manager
(iv) Approved
(v) Casual Leave

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DESCRIPTIVE QUESTIONS:

1. Draw neat circuit diagram of power circuit of WAG7 loco with all components ratings.
2. Draw neat circuit diagram of MEMU /EMU power circuit with all component ratings?
3. Explain the purpose of earthling of battery –ve intentionally and the problem of battery -ve cable?
4. Draw the DJ control circuit of WAG7 loco and explain how DJ will hold in HT.
5. Write the procedure for overhauling of TM
6. 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?
7. Write the charging and discharging procedure to be followed for commissioning of new batteries?
8. Write about all the safety relays, their ratings and how they cause tripping of DJ in the event of abnormality in loco?
9. 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?
10. Draw the circuit to explain how SR picks up in MEMU?
11. What are the major defects in TFP and describe briefly the cause and their remedial action?
12. What are the major failure in TM and describe briefly the causes and their remedial action?
13. What are the major improvements in Traction motor design?
14. What are the major failures of Auxiliary motors? What is the process for VPI to Aux. Motors and the advantages of VPI?
15. What are the advantages of microprocessor based control system of locomotive than the conventional control system?
16. Draw flow chart of the Traction Motor overhauling and what are the various tests to be done after over hauling of TM?
17. What do you mean by the condition monitoring of the equipment. Discuss briefly the various condition monitoring techniques?
18. What are the reasons for ICDJ and discuss their remedial measures?
19. List out the reasons for auto regression and their remedial action?
20. What do you mean by destructive and non-destructive tests. Describe briefly the various destructive and non-destructive tests?
21. Describe the trouble shooting during the CCPT melting?
22. Describe the trouble shooting for QOP and QOA?
23. Draw the flow chart of ARNO overhauling. What are the checks to be done during overhauling of the ARNO?
24. In WAG 7 describes the function of the following valves?
    a. A9 & SA9 brake valve
    b. C2 (BP&BC) relay valve.
25. Draw the neat diagram of pantograph indicates the part. Give the reason for panto entanglement and explain its remedies

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26. Why Air dryer is provided in locomotives and Explain its function and advantages in loco?
27. Draw the pneumatic circuit of A9, SA9, C2W (BP&BC) and Explain it briefly
28. What are the improvement measures which should be taken in shed to avoid the pneumatic failures?
29. Explain the working of C3W valve, VAIB valve Airflow measuring valve ?
30. Explain briefly about the various schedule maintenance done during IA, IB, IC1 & IC2 .
31. Explain briefly about the various schedule maintenance done during AOH&IOH
32. Draw the pneumatic circuit diagram of MEMU with brake controller EP unit and explain the working.
33. What are the must check pneumatic item at the time of dispatch?
34. How to weld a bogie frame crack?
35. What is the trip inspection and its periodicity.
36. 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.
37. What mounting procedure of a suspension Bearings?
38. What are the checks being carried out before dismounting the suspension
39. Bearing in case of failure?
40. What are the type of defects are experienced on suspension bearings of TAO- 659.
41. What is the discharge rate of a good suspension bearing pump?
42. What is the procedure to be adopted to weld a wear plates on the Bogie?
43. What is meant by Co-Co bogie?
44. What is the length of the locomotive?
45. What is the Gear ration of a wheel set?
46. What is the diameter of the new wheels sets?
47. What is the lower limit of the wheel diameter for condemnation/Re-discing?
48. What are the limits of the Flange wear and Root wear?
49. What is the distance to be maintained between wheel disc and the brake block?
50. What is 'L' type of brake blocks & Advantages?
51. What is wheel to wheel distance of wheel set?
52. What is the height of the sandwich mounting pad?
53. What is the diameter of an Axle?
54. What is the journal dia of an axle?
55. What is the free height of an outer Helical Spring?
56. What are the axle box clearances of a bogie?
57. What is the allowable wheel diameter difference on the same axle?
58. Wheel diameter difference on two axles of the same bogie?
59. Wheel diameter difference on bogie to bogie?
60. What is the height of the buffer?
61. What is the height of the rail guard?
62. What is Brake cylinder piston travel when brakes are in applied condition?
63. What is the height of the center pivot?
64. What is the height of the side bearers?
65. What are the different types of gauges used in Indian Railways?
66. What is the stopper to stopper distance of a wheel set?
67. What is the function of a SB- pump?

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68. What is the length of the equalizer assembly of a bogie?
69. What is B H N?
70. What is the tightening sequence of the bolts for TM axle cap?
71. How the vertical load of a locomotive will be transmitted through center pivot and load bearers in WAG5 & WAM4?
72. What is the MSU? Explain with major dimensions?
73. What is the capacity of each gear case?
74. What is the capacity of an each axle cap?
75. How many snubber coils will be available in the locomotive?
76. What is CBC?
77. What is the type of suspension in Co-Co bogie?
78. What is stress?
79. How to find out a bogie crack?
80. What are the correct lubricants recommended by RDSO for suspension bearing TAO-659?
81. What is the diametrical clearance between the journal and the suspension bogie?
82. How suspension Bearings will be checked?
83. What are the various diameters of journal of a wheel set is used in service?
84. The Traction Motor nose-suspension lugs on the bogie frame transoms is how much?
85. What are the purchase powers of officers direct and through tender committee?
86. Is there any powers for condemnation of major rolling stock procurement without replacement. If so furnish details.
87. What is meant by M&P programme at GM's level? Furnish the stages.
88. What is meant by M&P programme at R.Board's level? Furnish the stages
89. What are the items defined as capital space of loco and through which programme such items are to be procured?
90. What are the types of Rolling Stock programme and the process to be followed?
91. What is Rate Contract?
92. What are the items to be procured under Non-stock?
93. What is meant by proprietary article item and its schedule of powers of indenting officer?
94. What is the categorization of items?
95. As a Supervisory official what are the techniques for conducting an inquiry in D & A Rules, 1968?
96. Explain the procedure for imposition of Major penalty under D&A Rules 1968?
97. What are the minor penalties that can be imposed by an independent supervisor in respect of staff working under him?
98. 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.
99. What are the constitutional provisions in respect of official language?
100. Please specify the documents under section 3.3 of O.L. Act. 1963?
101. Please specify the rules applicable for implementation of Raja Bhasha ?
102. In working places for progressive use of Hindi, what are the suggestions you can suspect that can be implemented ?
103. What are the deductions from wages of an employee that can be made?
104. What are the provisions under rule 14 of D & A Rules, Act 1968

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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?

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OBJECTIVE TYPE QUESTIONS:

1. 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.

2. DI Type safety relays are
   a) QOP, QOA b) QRSI, QLA, QLM
   c) QOP, QPDJ d) Q44, Q118

3. DU type safety relays are
   a) QOP, QOA b) QLM, QRSI
   c) Q44 d) Q118

4. CT ratio of RSILM:_____
   a) 1000 : 5 b) 2000 : 5
   c) 4000 : 5 d) 1000 : 15

5. CT ratio of TFILM
   a) 50 : 5 b) 100 : 5
   c) 250 : 5 d) 200 : 5

6. Pick up voltage of Q20 in WAG5 locos:
   a) 750 V b) 800 V
   c) 865 V d) 850 V

7. While RB is in service which relay will act if any earth fault occurs in the power circuit
   a) QOP1 b) QOP2
   c) QOA d) QLM

8. The resistance value of RU in WAG locos is
   a) 88 kΩ b) 100 kΩ c) 120 kΩ d) 220 kΩ

9. The resistance value of RQ20 in WAG locos or 6P locos
   a) 2.4 kΩ b) 13.2 kΩ c) 24 kΩ d) 10 kΩ

10. The setting value of Q44 is
    a) 1 sec b) 2 sec c) 5 sec d) 0.6 sec

11. The setting value of Q118 is
    a) 2.5 sec b) 5.0 sec c) 0.6 sec d) 1.5 sec

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

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

13. The input / output voltage ratings of the DC-DC converter are:
a) 110V / 110V b) 110V/50V
c) 110V / 24V d) 110V/20V

14. In a twin beam Headlight, what is the voltage of bulb in “dimmer” operation.
a) 110V b) 55V c) 24V d) 12V

15. 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

16. The rating of a cab heater is.
a) 500Ώ, 500W (b) 400 Ώ,500W (c) 100 Ώ,500W(d) 50 Ώ,500W

17. How many CPs are required for Air brake loco:
(a) Minimum 2 CPs (b) Maximum 2 CPs
(c) Minimum 3 CPs (d) Maximum 3 CPs

18. Rating of MEMU transformer is
(a) 1200KVA (b) 1000KVA
(c) 800 KVA (d) 1100KVA

19. Voltage rating of MEMU Traction Motor is
(a) 500V (b) 580V
(c) 535V (d) 550V

20. New wheel diameter of MEMU Motor Coach/Trailer coach
(a) 900 mm (b) 950 mm
(c) 850 mm (d) 952 mm

21. Total auxiliary motors in MEMU motor coach
(a) 5 (b) 4 (c) 3 (d) 2

22. Total No.of traction motors in a MEMU/EMU Motor Coach
(a) 2 (b) 3 (c) 4 (d) 5

23. The Safety device provided in MEMU for detecting gassing and the protection of Transformer is:
(a) OLP (b) TTR (c) BUD (d) PRV

24. The Safety device fitted to the MEMU Transformer for its protection against

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Explosion.
(a) PRV (b) BUD (c) OLP (d) TTR

25. Maximum acceleration of MEMU, on level tangent track with crush load is:
(a) 1.2 Kmph/Sec (b) 1.6 Kmph/Sec (c) 1.8 Kmph/sec (d)1.4 Kmph/Sec

26. The Ampere hour capacity of MEMU battery is
(a) 100 AH (b) 75 AH (c) 90AH (d) 80 AH

27. Tractive effort of MEMU motor coach with 3 TCs at the time of starting
(a) 10 Tonnes (b) 9.6 tonnes (c) 8 Tonnes (d) 11 Tonnes.

28. What is class of Insulation specified for 180 degree temperature:
(a) B class (b) A class (c) H class (d) Y class.

29. The object of sanders is to
(a) Improve the adhension (b) Avoid wheel slipping
(c) To have momentum (d) All the above

30. Continuous tractive effort at wheel rim of WAG7 loco is
(a) 34.3 tonnes (b) 30 tonnes (c) 20.5 tonnes (d) 19.0 Tonnes:

31. 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

32. Specific gravity of electrolyte is measured using.
(a) Thermometer (b) Hygrometer (c) Hydrometer (d) Lactometer

33. 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.

34.Horse power of a TAO 659 traction motor.
(a) 700 HP (b) 600 HP (c) 770 HP (d) 800 HP

35.Size of each cable connected to Traction Motor is
(a) 120 Sq.mm (b) 150 Sq.mm (c) 200 Sq.mm(d) 270 Sq.mm

41. 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

42. 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

43. Size of cable used in control circuits is

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

44. Size of cable connected to Arno
(a) 100 Sq.mm (b) 150 Sq.mm (c) 120 Sq.mm (d) 150 or 120 Sq.mm

45. Breaking excitation transformer purpose is to.
(a) Excitation of armature (b) Excitation of field (c) Excitation of both (d) Excitation of TFP

46. BP1 DJ i*s pressed*
(a) To starts the loco (b) To stop the loco (c) To close DJ (d) To trip DJ

47. HQOP & HQOA are
(a) Earth fault relay by pass switches (b) Earth fault relay isolation switches
(c) Earth fault relays (d) All the above.

48. 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.

49. EM contactor pressure is
(a) 650 to 800 gms (b) 600 to 700 gms (c) 600 to 750 gms (d) 600 to 800 gms

50. Electrolyte used in a lead acid battery is
(a) Concentrated sulphuric acid (b) Diluted sulphuric acid (c) Nitric acid
(d) None of above.

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

52.The fuse rating of CCPT is
(a) 6 AMPS (B) 10 Amps (c) 16 Amps (d) 35 Amps

53. 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)

54. 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

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55. Battery negative is connected to loco body through
(a) HQOP (b) HQOA (c) HOBA (d) HQCVAR

56. MVMT1/MVMT2 are meant for cooling of
(a) Armature pf TM (b) Field coils of TM
(c) Stator of TM (d) All of these

57. 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.

58. The speed control method used in AC locomotive/MEMU
(a) Voltage control (b) Current control
(c) Rheostatic control (d) Regenerative control

59. The type of Electric braking system used in AC locomotive is
(a) Regenerative (b) Rheostatic
(c) Both

60. Instrument used to measure contact resistance
a) Whetstone bridge b) Multi meter c) Micro ohmmeter.

61. Action in lead acid cell
a) Reversible b) Irreversible c) Both a&b

62. 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

63. During rheostat braking traction motor works as a
a) Generator b) Converter c) Motor d) Inverter

64. Dual speed of PV`s obtained by
a) Changing frequency b) Changing poles c) By inserting resistance.

65. The relay QOP/QOA is the relays of sensing
a) Voltage b) Current c) Resistance.

66) IN MEMU, ABB Governor is for
a) Panto reservoir pipe
b) MR reservoir
c) Aux reservoir
d) Bp reservoir
e) None of the above

67) IN MEMU the setting of ABB Governor cut in /cut out is-

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a) 6.0/7.0kg/cm^2
b) 8.0/9.0 kg/cm^2
c) 5.6/4.5kg/cm^2
d) 4.0/5.0 kg/cm^2
e) None of the above

68) In MEMU the setting of MCP Governor cut in /cut out is-
a) 5.0/6.0 kg/cm^2
b) 7.0/8.0 kg/cm^2
c) 4.5/5.5 kg/cm^2
d) 6.0/7.0 kg/cm^2
e) None of the above

69) IN MEMU one of the following is a part of brake controller
a) Tripple valve
b) Equalising discharge valve
c) Safety valve
d) Application magnet valve
e) None of the above

70) IN MEMU one of the following is a part of EP unit
a) Equalizing valve
b) Triple valve
c) Puppet valve
d) Self lapping cylinder
e) None of the above)

71) IN MEMU the setting of equipment governor cut in/cut out is
a) 4.5/5.5 kg/cm^2
b) 2.2/3.8 kg/cm^2
c) 4.2/3.3 kg/cm^2
d) 4.4/5.2 kg/cm^2
e) None of the above

72) IN MEMU the setting of control governor cut in/cut out is
a) 5.5/4.3 kg/cm^2
b) 3.3/4.2 kg/cm^2
c) 3.2/4.8kg/cm^2
d) 5.5/6.5 kg/cm^2
e) None of the above

73) IN MEMU the BC Pressure is -
a) 2.0 kg/cm^2
b) 3.5 kg/cm^2
c) 1.5 kg/cm^2
d) 4.0 kg/cm^2
e) None of the above

74) IN MEMU the MR Pressure is

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a) 5.0 kg/cm^2
b) 7.0 kg/cm^2
c) 6.0 kg/cm^2
d) 8.0 kg/cm^2
e) None of the above

75). IN WAG-7 BP pressure not building up
a) A9 defective
b) C3W defective
c) SA9 defective
d) R6
e) None of the above

76) .IN WAG7 MR pressure not building up
a) A8cock closed condition
b) Bogie cocks closed condition
c) VEAD cock closed
d) MR cock closed
e) None of the above

77) 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 closed
e) None

78). In MU loco driver experienced rear loco brakes are not applying found the following trouble
a) MU2B leading loco in leading
b) MU2B tailing loco in leading
c) A1 differential cock closed
d) SA9 problem
e) None

79). Vacuum dropping suddenly on run. Driver will check for below
a) A9 defective
b) Train parted
c) VER (M) defective
d) VA1B defective
e) All the above

80) 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

81. Voltage operated relays are _____ type.

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82. Current operated relays are _____ type.
83. Setting value of QRSI relay _____ in WAG7/WAG5 locos
84. The purpose of SL is to ---------(Remove the pulses in DC out put from the rectifier)
85. The resistance value of RPGR is ……
86. The resistance value of RGR is ……..
87. The HP of MVSL is ……..
88. LECE is provided in the loco to indicate……
89. LSCHBA is provided in the loco to indicate……
90. Additional CCBA provided to protect ……
91. DC-DC converter provided to use head lamps of loco in ……section
92. Over charging of batters results ……
93. Under charging of batters results……
94. Tan delta being measured to monitor ……
95. DGA being measured for insulating oil……..
96. Transformer breather used for ……..
97. Traction Motor natural axies set by ……method
98. Q20 will pickup at -…….. Drop out at ……for 6P combination locos.
99. Current transformers are used to measure ……in AC systems.

100. The protection against safety for equipment as well as human in the locomotive.
    i. ETTFP b) ET1 &2 c) HOM
101. The number of auxiliary motors starts along with ANNO------
102. SJ is connected in series with……..
103. Tolerance of voltage in static converter …….
104. TFP oil is **……**
105. Tan delta test to detect…….
106. FRPCPY –…….
107. Effective value of RC-network across a3, a4&a5, a6 in WAM 4-6P loco ……
108. Type of traction motor bearing – ……..
109. Shock pulse meter to……..
110. Class of insulation for auxiliary motors winding……
111. UA is connected to ARNO U&V phases to read auxiliary power voltage corresponding to ……
112. Suspension bearing ……metal bearing.
113. …….. is used to estimate moisture content in transformer oil.
114. Water content allowable in the transformer oil max …….. in service new filtered oil …….
115. Specific resistance at 90° C (OHM-cm) ……new oil 35x 10 ohm Cm (min)
116. Die electric dissipation factor (Tan delta) at 90°c (IS-6267 –71) ……for in service oil new filtered oil……**.**
117. Acidity 0.5 mg KOH / Gm (max) in service for new filtered oil ……**K**OH/gm
118. Sediments and perceptible sludge allowable in TFP oil ……..
119. Transformer oil flash point minimum …….for serviceable oil and ……for new filtered oil.
120. Interfacial tension at 27°…… for new filtered oil

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121. Oxidation inhibitor ……by mass (max)
122. Ovalty of TM TAO armature ……
123. Arc horn gap for WAG-7 ……..
124. The purpose of star delta starter for induction motor is to ……on line.
125. VCB pressure switch setting cut in ……
126. Conservator safety valve spring tension ……
127. PHGR oil strokes ……
128. Tightness (torque) of GR segments ……
129. Minimum thickness of GR segments …….
130. Main contact pressure of reverser/CTF ……
131. Effective value of CAPTFP 3,4,5&6 ……..
132. Rating of surge arresters in 6P loco ……..
133. EM contact pressure ……..
134. EM contactor main contact air gap ……
135. C118 contactor pressure ……contact (C118) air gap_……
136. CGR contactor pressure……..
137. Transformer oil used to……..
138. Pyrometer is used to measure……..
139. In lead acid battery active material for positive plate –…….. It is in …….colour.
140. Negative plate active material……..
141. The electrolyte used in lead acid battery. ……..
142. Specific gravity of fully charged cell ……..
143. Contact used for AC MVRF ……
144. Hydrometer is used to measure…….
145. CGR contacts thickness ……
146. CGR contacts opening …….
147. The rating of ATFEX ……..
148. The current through RGR flows when ……..are closed.
149. Fully charged cell gives off ……at cathode and …….at anode.
150. The input supply of CHBA ……..output …….
151. Which amongst the following insulation class of material can with stand highest temperature. A) H B) C C) F D)B
152. TFVT input ……..out put 110 V A.C
153. The air gap between stator and rotor of MVRH ……..
154. The air gap between stator and rotor of MVMT is ……..
155. The size cable connected to ARNO ……..
156. Two pole synchronous motor runs at …….. rpm
157. Un serviceable scrap is placed ……..on the form ……(DS dead stock)
158. Class of insulation and temperature
Y= 90°c: A=105°c : E=120°c : B=130°c : F= 155°c. H=180°c, C=225°c
159. RGR Resistance value ……..
160. R QOP resistances valve ……..
161. R118 resistance ……
162. RHOBA resistance ……..
163. QOP/QOA coil resistance value …….
164. Q30 coil resistance ……

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165. Q44 /Q118 coil resistance value ……
166. QLM/QE/QF/QRSI relays resistance……..
167. RPS permanent field weakening resistance…….
168. Continuous current permissible through RPS ……
169. Meter used to check inter turn shorts in EP coils ……..
170. Rating of HRC fuses used in series with RPS…….
171. No of poles used in MEMU traction motor ……
172. Type of cooling used in MEMU traction motor …….motor.
173. Continuous rating of MEMU TM ……
174. When MPS in 1 position what is the resistance value applied in parallel to the field ……
175. Mica thickness of commutator of MEMU TM ……..
176. MEMU TM depth of mica under cut …….
177. what is the wear limit of Brush for MEMU traction motor…….
178. When MPS in 2 position what is the resistance value applied in parallel to the field ……..
179. When MPS in 3 position what is the resistance value applied in parallel to the field ……
180. QVMT cut in pressure 150 mm WG cut out ……
181. QVRH cut in pressure 50mm WG cut out …….
182. QVSL cut in pressure 50mm cutout…….
183. FYFR ……..

184. In WAM4 loco the standard setting of BP pressure is……..
185. In WAM4 loco the standard setting of FP pressure is ……..
186. In WAM4 loco the Pressure drop is allowed up to ……..
187. In WAG5A loco the BP drop is allowed up to ……..
188. In WAG5A loco the FP leak hole drop is allowed up to …….
189. In WAG5A Dual brake loco the Vacc drop should not exceed ……..
190. In WAG5A loco the Standard setting of RGCP is cut in/cut out ……
191. In WAG5A loco the Standard setting of QPDJ is cut in/cut out ……..
192. In WAG5A loco the standard setting of SWC cut in/cut out …….
193. In WAP4 loco the standard setting of QPH is cut in/cut out ……..
194. In WAP4 loco the standard setting of RGAF is cut in/cut out ……..
195. In WAP4 loco the standard setting of P1 is cut in/cut out ……..
196. In WAP4 loco the standard setting of P2 is cut in/cut out …….
197. In WAM4 loco the standard setting of RGEB1 in DBC loco cut in/cut out ……..
198. In WAP4 loco the standard setting of RGEB2 cut in/cut out……..
199. In WAG5A loco the standard setting of CPA SV (SS1) is …….
200. In WAG5A loco the standard setting of MR Safety Valve (SS2) is ……
201. In WAG5A loco the standard setting of CP Safety valve is …….
202. In WAG5A loco the Brake application pressure through SA9 is ……..
203. In WAG5A loco the BP Charging Time through A9 Emergency to release position should be. ……..
204. In WAG5A loco the Brake application/release time through SA9 is ……

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205. In WAG5A loco the Brake application/release time through A9 for passenger loco is ……
206. In WAG5A loco the Brake application/release time through A9 for goods loco is ……
207. In WAG7 loco the contact pressure of pantograph AM 12 is ……
208. In WAG7 loco the raising / lowering time of pantograph is …….
209. In WAG7 loco the Metalised carbon strips in pantograph are provided to ……..
210. In WAG7 loco the Duplex check valve is set at …….
211. In WAG7 loco the minimum pressure required to raise pantograph AM 12 is ……..
212. In WAG7 loco the lowering time of pantograph AM 12 is adjusted through…….
213. InWAG5A the panto raising steps are adjusted by the …….
214. In WAM4 loco during vacuum block test vacuum should not create ……..
215. In loco motives Air dryers are provided to adsorb moisture from …….air.
216. In WAG 5 loco the preset level of vacuum is adjusted by the …….
217. In WAM 4 during BP leak hole test MR pressure should not drop ……..
218. RDSO Modification no.304 is tells provision of ¾ pipeline to …….
219. RDSO Modification no.308 is about provision of ……..
220. RDSO SMI NO 197 is tells about…….
221. In WAM4 SMGR PRV setting is ……..
222. RDSO SMI NO 11 is for the ……
223. Vacuum level setting at WAM4 dual brake loco dummy/disc is ……
224. In WAG5A loco the setting of HS4 control valve is ……
225. In WAG5A loco the Auto drain valve is provided to drain the moisture from …….
226. In WAG5A loco the purpose of Unloaded valve is to avoid burning of ……..
227. In WAG5A loco the permissible limit of Transverse flexibility of pantograph is ……..
228. In WAG5A loco the brake cylinder pressure through A9 is ……..
229. Classification of loco failures.
230. Types of maintenance schedules being carried out in Electrical loco shed:
231. Types of maintenance schedules being carried out in trip sheds:
232. RDSO issues for Reliability of equipments for maintenance of different equipments:
233. Types of maintenance schedules being carried out in workshops:
234. Periodicity of AOH schedule for freight locos:
235. Periodicity of IOH schedule for freight locos**:**
236. Periodicity of POH schedule for freight locos:
237. Periodicity of IC schedule for freight locos:
238. Periodicity of IB schedule for freight locos:
239. Periodicity of POH schedule for coaching locos:
240. Periodicity of IOH schedule for coaching locos:
241. Periodicity of AOH schedule for coaching locos:
242. Periodicity of IC schedule for coaching locos:
243. Periodicity of IA schedule for coaching locos:

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244. Periodicity of IB schedule for coaching locos:
245. Trip inspection is carried out after. ……**Kms** for pass. &…**Kms** for freight locos.
246. Maintenance of transformer & Tap changer is being done by… …section in electric loco sheds.
247. Over hauling of pneumatic equipments is carried out by …. …. section by electric loco sheds.
248. Heavy repairs of bogies & mechanical complaints are being carried out by **….** …. Section in electric loco sheds.
249. Planning & dispatch of locos being done by …. …. section in electric loco sheds.
250. Specification and drawings preparation is done by ……section in electric loco sheds.
251. Loco failures and analysis is being done by **….** …… section in electric loco sheds.
252. Troubleshooting & investigation of unusual occurrence is being done by… …. Section in electrical loco sheds.
253. Wheel set clearances is being measured during **……** …….. Schedule.
254. Traction Motors over hauling is being carried out by … ..…section in electrical loco sheds.
255. Electronic PCBs & components are checked by **… …**……section in electrical loco sheds.
256. Under frame inspection is carried out by … ……..section in electrical loco sheds.
257. Material procurement of stores, updating of specification and test & trail are maintained by … ……section in electrical loco sheds
258. Full form of the following abbreviations.
    1. CLW -
    2. COFMOW -
    3. DGS&D -
    4. M&P Items -
    5. RSP -
    6. PAC -
    7. PL No. -
    8. RITES -
259. What is the purchase powers of AMM @ COS -
260. What is the purchase powers of SMM @ COS -
261. What is the purchase powers of Dy.CMM @ COS-
262. NS Indent form No. S1302 is used for value up to ……..
263. For indent above Rs. 10,000/-, form No…….. to be used
264. To draw the stocked item form No. …… to be used
265. For which value indent is to be got vetted above Rs……..
266. What is the sign power of PAC upto Rs.25,000/- …….
267. What is the sign power of PAC upto Rs. 25,001 to 75,000 ……
268. What is the sign power of PAC upto Rs. 75,001 to 3 Lakh ……..
269. What is the sign power of PAC above Rs. 3 Lakh ……
270. Category – A value……..
271. Category – B value ……
272. Category – C1 value…….
273. Category – C2 value……

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274. Who are the officers to be nominated in tender committee for item above Rs. 5 Lakhs upto 10 Lakhs?
275. Who are the officers to be nominated in tender committee for item above Rs. 10 Lakhs upto 40 Lakhs?
276. Who are the officers to be nominated in tender committee for item above Rs. 40 Lakhs upto 1 Crore?

277. 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 _____.

278. 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. _____
279. For Imposition of major penalty, a charge sheet is issued to Railway Servant. What is standard form No._____
280. 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.
281. One technician Gr.I entered the working premises in a state of intoxication. The supervisor observed and reported the matter to higher authorities. It is deemed that the employee violated the Rule No. _____ of Railway Services (Conduct) Rules, 1966
282. The Railway servant while attending AOH 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. _____

283. The period of LAP/LHAP sanctioned by an independent supervisory official in scale Rs. 5500-9000 and above to the staff of safety categories per annum shall not exceed _____ days.
284. The State Railway Provident Fund (SRPF) rules will not apply to Railway servants entering into service on or after _____.
285. Powers of Suspension to an Assistant Officer in respect of Group C & D staff upto and including pay scale of Rs. _____
286. Suspension is not a _____
287. Out of minor penalties under D&AR, the lowest penalty shown in Rule 6 is _____

288. An order passed by an inquiring authority in the course of an enquiry under Rule 9 against which _____ appeal lies.
289. The D&AR Rules have come into force on _____
290. Should a Government servant require obtaining prior permission to join a chit fund?

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291. A Railway servant holding Group C&D post enters into a transaction in respect of moveable property either in his own name or in the name of his family member shall report to Government within one month from the date of transaction, if such property value exceeds Rs. _____
292. A Railway servant holding Group A & B post enters into a transaction in respect of moveable property either in his own name or in the name of his family member shall report to Government within one month from the date of transaction, if such property value exceeds Rs. _____
293. The limitation of time for an appeal in D&A Rules, 1968 is _____ Ans: 45 days
294. The inquiring officer is nominated by _____ in D&A Rules, 1968.
295. _____ Days time is to be allowed to the charged employee for submitting his
296. Written statement of defense.
297. If the charged official does not appear before the Inquiry officer, the inquiry may be held _____
298. The inquiry officer during inquiry has to first examine witnesses of _____
299. What is full form of D&AR? .
300. The inquiry officer should normally complete inquiry from the date of his appointment?
301. 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 _____
302. The charge sheet on behalf of the President cannot be issued to a retired Railway employee in respect of offence, which had taken place more than _____ years before issue of charge sheet.
303. The recommendations by the complaint committee in respect of offence of sexual harassment of working women in her work place is _____ on D.A.
304. If an employee, after his retirement, is found guilty in judicial proceedings for an offence committed during his service a cut in pensionary benefits can be imposed by the _____
305. Hindi Diwas is celebrated every year on _____
306. Under the Hours of Employment Regulations, the artisan staff working in ELS is classified as _____.
307. How many languages are included in the VIII Schedule of the Constitution of India?
308. For the purpose of implementation of official language, the Union of India is divided into _____ regions.
309. What is the qualifying service for a Railway servant to retire from service voluntarily?
310. Grant of “leave not due” in entire service to a Railway Servant is limited to _____
311. Who is the appointing authority is respect of group C & D in grades raising pay up to Rs. 4590/-
312. Special casual leave on sports account for participation in international events can be sanctioned by DRM is _____ days.
313. The powers for transfer of Group C&D staff on Inter Railway basis lies with _____

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314. The powers for transfer of Group C &D staff in case of inter divisional transfer lies with _____
315. The total deductions including payment to co-operative societies from an
316. employed person shall not exceed _____% of such wages.
317. The wage period under the Payment Wages Act shall not exceed _____
318. The over-time allowance is payable in case of beyond rostered hours _____ time of ordinary wages
319. _____the ordinary wages will be paid to an employed person, if he employed more than statutory hours.
320. Temporary exemption in respect of non-gazetted staff can be ordered by an officer not less than the rank of _____ .
321. An independent supervisory official can institute DAR proceedings against the staff working under him who are in _____ grades below.
322. Amplify the abbreviation "S.O.P." _____ .
323. Amplify the abbreviation "ACR": _____ .
324. Conducting of an inquiry is not necessary under D&A Rule No. _____
325. The Appellate Authority is _____than DA.
326. In case the penalty in a case is adequate, the appellate authority _____ the penalty imposed by the DA.
327. If the penalty ordered is severe with reference to the nature of misconduct, the
328. Appellate authority can _____ the penalty imposed by DA.
329. If the penalty imposed by DA is inadequate, the Appellate Authority can _____ the penalty ordered. .
330. The Railway Servant's Discipline and Appeal Rules were made as per the proviso to Article _____ of the Constitution.
331. The D&A Rules are not applicable to _____ staff.
332. The D&A Rules are not applicable to any person who is in _____ employment.
333. Holding of inquiry is _____ necessary in case the charged employee admitted all the articles of charges framed against him.
334. In D&A Rules, the Commission means _____
335. R.R.T.: Amplify _____ .
336. Revisionary powers on an appeal at zonal level can be exercised without restriction of any time limit by _____. .
337. The Railway Servant may for the purpose of his defence submit the written statement of defence and a list of _____ to be examined on his behalf.
338. What is the standard form to be issued to a Railway Servant for imposing minor penalty charge sheet.
339. The Inquiry officer should be sufficiently _____ in rank to the charged official.
340. What is the temperature raise permitted on TAO –659 SB's …….
341. What is the temperature raise permitted on TAO –659 AB …….
342. What is the radial clearances for WAG-7/Axle Box bearings during services……
343. How Bogie frames declared as distressed as per RDSO norms……

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1. Type of three phase locomotive available on Indian Railways
   a) WAP1/WAP5/WAP4
   b) WAG7/WAG9/WAP7
   c) WAP5/WAP7/WAG9

2. Type of motor used in 3 phase locomotives
   i) DC series motor
   II) Three phase IM
   iii) Single phase IM

3. Advantage of three phase locos.
   a) Regenerative basis
   b) UPF
   c) Both a & b
   d) None of the above.

4. 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

5. Higher horse power locomotive available with type of locomotive on Indian Railways.
   a) WAG9
   b) WAP7
   c) Both
   d) WAP4

6. Important power device used in three locomotive for power conversion
   i) IGBT
   ii) GTO
   iii) Transistor
   iv) IGCT

7. Type of Pantograph used in 3 phase
   a) AM12
   b) AM92
   c) IR03
   d) Both b & c

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ANSWER THE FOLLOWING QUESTIONS:

1. Describe the improved technical features available in three phase locos over conventional locos?
2. Describe the types of brakes available in three phase locos?
3. Describe the advantages of three phase locos over conventional locos?
4. Describe the positions of automatic train brake (A-9) handle in three phase locos?
5. 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?
6. Draw the schematic diagram of fiber optic cables layout in 3 phase locos?
7. Draw the schematic diagram of WAG-9 loco power circuit?
8. Describe the sub-systems available in three phase locos?
9. Name the various maintenance schedules being followed for three phase locos and indicate their periodicities for WAG9 & WAP7 locos?
10. Draw and explain briefly the BP charging through A9 in three phase loco?
11. Describe the loads of auxiliary converters and their load sharing when auxiliary converter No.1 is isolated?
12. Name the various rotary switches available in SB-1 panel? Indicate their positions and significances?
13. Draw the line diagram of Potential Transformer (PT) circuit and explain briefly?
14. Name the various major and minor maintenance schedules being followed in three phase locos and indicate their periodicity for WAG-9 and WAP-7 locomotives?
15. Draw the line diagram of oil cooling arrangement (TFP & SR) in three phase locos and explain briefly?
16. 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
17. 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?
18. 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?
19. In how many ways a traction converter can be isolated, indicate?
20. Describe the procedure for viewing the background data in the DDS?
21. What are the different types of speed sensors used in WAG9/WAP7 (GTO) locomotives? Briefly explain their features and relative merits and demerits?
22. Briefly explain the working of AFI in WAG9/WAP7 locomotives with E70 brake system?
23. 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 3Ø locomotives? Briefly explain any three possibilities with root cause?
24. What are the key differences between the maintenance of HS15250A and FRA6068?
25. What do you understand by following DDS messages?
    i. ASC1:0081-PS Fault Storage CGP
    ii. ASC2:0053-Error Tacho generator 2

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iii. FLG1: 0040-S/R Interlock-main res. low
iv. BUR2:0020-Bat. Charger current below 10A
v. ASC2:0082-PS fault storage GBC

26. What are the different ways of resetting Vigilance cycle of VCD in 3Ø locomotives? What action takes place when BPEMS switch is pressed?
27. How many different ways emergency braking can take place in 3Ø locomotives?

Match the following (3Ø)

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

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

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

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

5.

Component	Description
a) WRE Module	1) Drive converter for SR
b) Wandler Module	2) Primary Voltage Transformer
c) NSR	3) Rectifier Module for BUR
d) ASR	4) Inverter module for BUR
e) GG Module	5) Line converter for SR

6.

MCB	Description

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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

7.

	Component	Location
a)	FDU	1) HB2
b)	MCR	2) HB1
c)	Wandler Module	3) SB2
d)	Aux Transformer 415/110v	4) SR
e)	Earth Fault Relay Aux	5) SB1

8.

	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

9.

	Pneumatic Component	Description
a)	70 coc	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

10.

	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

11.

	Bearing type	Location
a)	NU330	1) CE bearing for HS15250A
b)	NJ320	2) PE bearing for HS15250A
c)	NJ324	3) DE bearing for FRA6068
d)	NU2236	4)NDE bearing for FRA6068

12.

	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

13.

	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

14. Condition of BURs in ELS/LGD — Number of Aux. Load

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a) Total Aux. loads on all BURs 1) 6
b) Total Aux. loads on BUR2 when All BURs are working 2) 13
c) Total Aux. loads on BUR2 when Only BUR1 isolated 3) 8
d) Total Aux. loads on BUR3 when Only BUR1 isolated 4) 7

15.

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

16.

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

CHOOSE THE CORRECT ANSWER

1. Different gear ratios in WAG-9 loco is
   a 15:77, 18:64 b. 15:77, 20:72
   c. 15:77, 21:107 d. 15:77, 17:77

2. Maximum braking effort of WAP-7 Loco is
   a. 260KN b. 160KN
   c. 182KN d. None of the above

3. ZV-ZV Valve sets consists of
   a. 2 GTOs and 2 Diodes b. 4 GTOs and 4 Diodes
   c. 5 GTOs and 3 Diodes d. 5 GTOs and 3 Diodes

4. Voltage applied to Traction Motors (Phase to Phase) in WAG-9 loco is
   a. 2180 Volts b. 2800 Volts
   c. 750 Volts d. None of the above

5. If ZBAN is switched “ON”
   a. FP drops to zero b. Over charging of BP takes place
   c. BP drops to zero d. BP & FP drops to zero

6. Machine Room blower-I receives supply from
   a. BUR-1 b. BUR-2
   c. 415 Volts directly d. 110Volts directly from Transformer

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from Transformer

7. 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

8. 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

9. 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

10. 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

11. 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

12. 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

13. DC Link voltage of Traction Converter is
   a. 1172 Volts
   b. 2180 Volts
   c. 2800 Volts
   d. None of the above

14. Traction Motors in three phase loco are
   a. 3 Phase slip ring induction motor
   b. 3 Phase synchronous motor
   c. 3 Phase squirrel cage induction motors
   d. DC series motor

15. Battery charger rectifier in 3 phase locos:
   a. Half Wave
   b. Bridge Full wave
   c. Full Wave center tap
   d. Both b & c

16. BUS STATION cooling fans work on
   a. 110Volts
   b. 48Volts DC

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c. 24Volts DC d. 110Volts AC

17. MUB acts when DC link Voltage reaches:
a. 2800 Volts b. 2100 Volts
c. 3200 Volts d. 3000 Volts

18. VCB trips when transformer oil temperature rises to
a. 80 degrees b. 84 degree
c. 75 degrees d. 70 degrees

19. Output of Auxiliary winding is
a. 415Volts b. 1000Volts
b. 2100Volts d. 1200Volts

20. In three phases locos Priority-II message means
a. Trips VCB b. Shut down loco
b. Isolates sub-system d. Allows normal functioning

21. "ASC:0081-PS Fault Storage CGP" message is logged in three phases based on
a. Differential voltage b. Differential current
b. Differential earth fault d. None of the above

22. VCB trips when auxiliary circuit current exceeds
a. 280Amps b. 400Amps
c. 500Amps d. 1000Amps

23. Output frequency of a Traction Converter is
a. 60-120HZ b. 62-132HZ
b. 50-100HZ c. None of the above

24. ZTEL switch is used in
a. Banking mode b. Inching mode
c. Simulation mode d. None of the above

25. Type of batteries used in three phase locos
a. NiCd b. Both a & c
c. Lead Acid d. None of the above

26. Primary over current relay is
a. 89.7 b. 78
b. 89.6 d. 86

27. Time delay of Timer relay in MR Blower
a. 08 Sec b. 10 Sec
c. 12 Sec d. 05 Sec

28. Current rating of OCB MCB is

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

29. In STB-1 signal “AMSB 0102 LVCB” “L” indicates
a. Action of the loco driver b. Message
c. Command order d. None of the above

30. The brake application time through DBC in WAG-9 locos is
a. 06 to 09 secs b. 10 to 15 secs
c. 15 to 20 secs d. none of the above

31. Number of electronic cards available in E-70 panel
a. 4 b. 6
c. 2 d. 3

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

33. The number of PBU available in WAP-7 locos is
a. 04 b. 12
c. 02 d. 08

34. The number of sanders to be kept in service in WAP-7 locos is
a. 08 b. 12
c. 04 d. None

35. 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

36. 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

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

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

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

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

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

42. 260 indicate _____equipment.
a. Filter block b. SR rack
c. Pneumatic panel d. BUR

43. Valve set 13 consists of _____number of GTOs.
a. 2 b. 1
c. 4 d. 3

44. MUB GTO is present in _____valve set.
a. 12/1 b. 12/2
c. 12/2 d. 13/1

45. MU is not possible if _____card is defective in any one of the 3Ø locomotives.
a. SLG1 b. ALG1
c. FLG1 d. SLG2

46. 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

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

48. _____no. of processor cards is interchangeable between VCU1 and VCU2 after reloading the appropriate software.
a. 2 b. 5
c. 6 d. 3

49. SLG1 & SLG2 is interchangeable by changing_____.
a. Hex address & Software b. Software
c. Hex address only d. Not interchangeable

50. 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

51. 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

52. BUR 1 & 2 operate at _____Frequencies.

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

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

53. 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. 1 & 3

54. 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

55. Correct arrangement of foot switches in 3Ø 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

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

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

57. 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

58. For performing shunting _____switch to be kept in _____position and the speed limit is _____kmph.

a. 154, 'I", 10 kmph
b. 152, '0", 5 kmph
c. 160, 'I", 15 kmph
d. 162, '0", 5 kmph

59. While working loco in _____mode, VCD need not be acknowledged.

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

60. 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

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d) None of the above

61. The number of teeth on the M/s ARC make Hall effect speed sensor ring are_____.

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

62. If the TM rotates at a speed of 600 rpm then the frequency of pulse generated by ARC make speed sensor is_____.

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

63. 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

Which of the above statements indicates healthy motor?

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

64. Contactor 52/2 in auxiliary circuit is used for redistribution of_____.

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

65. 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

66. 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

67. 24V and 48V DC-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

68. Transformer in 3Ø locomotives is having _____number of windings.

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

69. MCB for machine room lightning is _____.

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

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70. _____number of change over contactors are provided in auxiliary circuit of 3Ø locomotives.

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

71. Which of the following is not a valid zinfo for "ASC1:0082 PS fault storage GBC".

a. 1106 b. 120D
c. 130E d. 1406

FILL IN THE BLANKS

1. In STB1 signal "AMSB_0102 LVCB on" "L" Stands for _____
2. Horse power of a WAG-9 loco is _____
3. Gear ratio in WAP-7 loco is _____
4. Type of Traction motors used in WAG-9 locos _____
5. Maximum tractive effort of a WAG-9 loco is _____
6. Maximum speed of a WAG-9 loco is _____
7. Maximum braking effort of a WAG-9 loco is _____
8. Maximum tractive effort of a WAP-7 loco is _____
9. Maximum braking effort of WAP-7 loco is _____
10. Ampere- Hour capacity of a WAG-9 loco battery is _____
11. Parking brakes are provided on wheel no _____ in WAG-9 loco
12. Lubricant used in gear cases of three phases locos is _____
13. Number of Bus stations available in three phase locos is _____
14. For isolating VCD, switch no _____ is to be placed on _____
15. Switch no 154 has _____ positions.
16. ZV-MV valve set consists of _____ number of GTOs and _____ number of Diodes.
17. Axle load of WAP-7 loco is _____
18. Periodicity for POH of a WAP-7 loco is _____
19. Purpose of oil cooling blowers in three phase locos is to _____
20. IN SGCI Labyrinth, SGCI stands for _____
21. Traction motor mounting arrangements in three phase locos is _____
22. For raising PT-1 only from both cabs, _____ switch is to be placed in _____ position.
23. For switching over to failure mode operation _____switch is to be placed in _____ position.
24. Constant speed (BPCS) activates at _____ KMPH and above.
25. Parking brakes will not apply through `BPPB' if speed is more than _____ KMPH.
26. On throwing the reverser form `0' to forward (F) the node number changes from _____ to _____.
27. Number of DC to DC converters available in a three phase loco are _____
28. VCB trips when SR oil temperature rises above _____ degrees.
29. In three phase locos cable index "DG" indicates _____
30. In three phase locos cable index "DA" indicates _____
31. In FTIL locos feed pipe coc number is _____

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32. While moving a three phase loco as dead the position of following cocs shall be COC-47 _____, COC-70 _____, COC-74 _____ & COC-136 _____.
33. Maximum BC pressure applied when DBC is kept in full service position is _____
34. During changing cab rear cab SA9 (DDBV) is isolated through _____
35. The brake release time through DBC in WAG-9 is _____ Seconds.
36. Anti-compounding valves are located near _____
37. The pressure switch used for vigilance control is _____.
38. The settings of compressor governors in WAG-9 locos are _____ and _____
39. In MU operation, when SA-9 is operated brakes are applied in rear loco through _____
40. The number paring brakes units available in WAG-9 locos is _____ and available on wheel no.s _____
41. In release position of DBC BP is charged upto _____
42. KW rating of a Oil Cooling Blower motor in three phase loco is _____
43. On throwing the reverser form `0' to forward the node number changes from _____ to _____.
44. Instrument lamps works on _____ volts.
45. Rating of head light lamp in three phase locos is _____ volts and _____ Watts.
46. Capacity of a battery in three phase loco is _____ AH.
47. Over current relay in three phase locos is _____.
48. Power converter is isolated by switch No. _____
49. Sub-system `06' corresponds to _____
50. Power factor in three phase locos is _____
51. Input and output of potential transformer is _____ and _____ respectively.
52. In an electronic card "PPB622 A01", `PPB622' stands for _____`A' stands for _____ and `01' stands for _____.
53. Oil used in gear case of WAG9 & WAP7 locos _____.
54. **"NSC2: 0082 PS fault storage GBC" with Zinfo:1312 hex indicates defect in _____valve set.**
55. Two locomotives of ELS/LGD are provided with TCN/VCU. The acronym TCN stands for _____.
56. In M/s BHEL make IGBT locomotives, TM1 firing is controlled by _____.
57. 25A8 module is controlled by _____M/s BHEL make IGBT SR.
58. Pre charging contactor in SR is used for _____.
59. When MCB 63.1/2 is tripped, It will consequently lead to_____.
60. 411 location indicates_____.
61. Limits of OHE voltage during working of WAG9 locomotive is _____kV to _____kV.
62. If temperature of SR exceeds_____degrees then TE/BE is reduced to '0' and exceeds_____degrees VCB will be off.
63. The letters V-O-F on cab buzzer indicates_____.

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64. Self hold mode means_____.
65. The fault message F0101p1 results in_____.
66. S/R interlock activates after attaining a speed of _____kmph.
67. In _____mode, working of VCD can be tested on standstill position in 3Ø locomotives.
68. ZBV stands for_____.
69. Number of GTO Gate units available in SRs of locomotive are_____.
70. The brake rigging arrangement of WAP7 locomotives is similar to _____locomotive.
71. The grease used for lubrication of bearings of FRA 6068 is_____.

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SOUTH CENTRAL RAILWAY **SECUNDERABAD DIVISION**

SYLLABUS FOR PROMOTION AS JE-II IN SCALE Rs. 9300-34800+4200(GP) IN TRS ORGANISATION AGAINST 25% RANKERS QUOTA

1. Study of Electricity ohms Law Magnetism Flemings R.H. Rule, L.H. Rule, Lenz's Law, BM Induction Parameters of D.C circuits, working principles of D.C. Machines, Characteristics, speed control.
2. Study of Characteristics, Armature, Reaction, Commutation Improvements for commutation and suitability of D.C. Series Motor for traction duty - study of Traction Motor used in A.C. Locomotives WAP4/5/7 & WAG5/7/9 Maintenance, repairs, overhaul.
3. A.C. Circuits, parameters of A.C. circuits, Simple calculations, study of power supply arrangements of A.C. traction.
4. Study of current collection in A.C. Locomotive, study of roof equipment of A.C. Loco.
5. 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 WAP4/5/7 & WAG5/7/9 Maintenance and overhauling tests to be conducted on the transformer, study of tap changer, operation method for voltage control, Testing of transformer.
6. Study of fuse protectors, switches and isolators, construction and working detail of circuit breakers of A.C. Loco (DL).
7. Study of various type of contractors and relays, study of relays and contractors used in the A.C. Loco, B Drum, contactors. Function of blow out coil and arc chutes.
8. Study of Batteries, commissioners (initial charging) maintenance and reclamation and battery charging procedures.
9. Study Rectification methods, filters, study of Silicon rectifier, smoothening reactor in the Loco study of semi-conductor devices, battery charger.
10. Safe working on the locomotive precautions to be taken, Fire preventive measures in the locomotive and study of fire fighting.
11. 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.
12. 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. **Maintenance of Three phase traction motor FRA 6068 and its cooling arrangement. Speed sensor and temperature sensor of traction motor and their importance in Three phase locomotives.**
13. Study of Earth testing procedure, insulation test for various equipments and testing of insulators.
14. Study of power factor and the improvement methods demand and economy in installation of Electrical energy.

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15. Study of circuit, analysis of WAP4/5/7 & WAG5/7/9 locomotive i.e study of circuits, cabling Index and other drawings. **Cooling circuit of WAP7 and WAG9 locomotives.**
16. Three Phase locomotives: **Battery charging arrangement in 3Ø locomotives. Auxiliary power supply and load sharing between BURs during normal condition and during isolation of one BUR. Understanding the working of various contactors associated with Harmonic filter. Understanding of various MCBs provided in HB and SB panels and their importance in trouble shooting various faults.**
17. Three Phase locomotives-Pneumatic system: **understanding of BP charging in 3Ø locomotives in E70 brake system. Brake application and release using A9 and SA9. Different kinds of braking available in three phase locomotives. Overview of Brake electronics. Understanding the E70 tri-plate panel-various cocs, valves and their location and position.**
18. Three Phase locomotives - Features: **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.**
19. Measurements of Resistance, current voltage, power study of various types meters and equipment used, megger, diode tester, ammeter, Voltmeter etc., Uses of shunts, multipliers.
20. Study of WAP4/5/7 & WAG5/7/9 Bogie, wheel arrangements, suspension arrangements and all mechanical features like elements of Vibration, Oscillation, Damping devices, Elasticity etc.
21. Study of Sander gear and Brake rigging, various types of brake systems in A.C Loco.
22. Study of Pneumatic circuitary of WAP4/5/7 & WAG5/7/9, Study of various Pneumatic Valves, braking system (E System)
23. Study of stores and accountal correspondence.
24. Study of maintenance schedules for various equipment in the A.C. Locomotive, its periodicity.
26. Study of Locomotive, testing, engine fitness and trouble shooting procedure.
27. RDSO modification and SMIs implementation and maintenance of various records.
28. New equipments in loco such as MPCS, SIV, VCD and WMUCS and **understanding basic features of M/s BHEL make IGBT locomotives.**

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ANSWERS

I. Choose the right answer

1.	(c)	2.	(a)	3.	(c)	4.	(c)	5.	(d)
6.	(a)	7.	(b)	8.	(c)	9.	(c)	10.	(d)
11.	(b)	12.	(b)	13.	(c)	14.	(c)	15.	(d)
16.	(c)	17.	(c)	18.	(c)	19.	(b)	20.	(c)
21.	(b)	22.	(c)	23.	(c)	24.	(b)	25.	(d)
26.	(a)	27.	(a)	28.	(c)	29.	(c)	30.	(c)
31.	(b)	32.	(d)	33.	(c)	34.	(a)	35.	(b)
36.	(b)	37.	(d)	38.	(a)	39.	(a)	40.	(a)
41.	(b)	42.	(d)	43.	(a)	44.	(c)	45.	(b)
46.	(b)	47.	(d)	48.	(a)	49.	(b)	50.	(d)
51.	(b)	52.	(b)	53.	(a)	54.	(c)	55.	(b)
56.	(d)								

II. Fill in the blanks:

1. 16:65
2. 20.5 ± 2% tones
3. 16:65
5. 75
6. Blower for cooling transformer oil
7. WAP-4
8. 3mm
9. Parallel
10. Commutation
11. Higher
12. Main compressor and motor
13. Dissolved gas analysis
14. 1.875Ω
15. AM-12
16. Bridge
17. TM over voltage relay
18. Two
19. Generator
20. Panto graphs
21. 04
22. 20/25 to 25/30

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23.3.5 kg/cm^2
24.107 to 117
25.Proportional
26.150
28.ZLS
29.630
30.6.5
31.45

III. Match the following:

a)	6	b)	8	c)	7	d)	3	e)	2
f)	5	g)	1	h)	4	i)	9	j)	10

41) C3W valve, VAIB valve, D1 differential valve, synchronizing valve

43) a) 5A b) 4.5A c) 160/130 d) 215/265
e) 9A

Questions on DAR, Stores, Personnel & General matters

2) SF-V to be used when it is proposed to take up an employee for imposition of major penalty.

Question of Official Language

3.
(i) Quality
(ii) Useful
(iii)Maintenance
(iv)Auxiliaries
(v) Purpose

5. Translate into English
(i) Electrical protection/Safety
(ii) Maintenance
(iii) Fire accident
(iv) Attendance register
(v) Examination

Descriptive Question

27. CKT
33.BP, FP, Brake power
45. 16.65
46. 1092 mm
47. 1016 mm
49. 10 mm
51. 1596 mm
54. 1600 ± 2

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56. Lateral clearance end axles min to max – 4mm. Middle axle → min-2.4mm max-
    6mm. Longitudinal clearance → min – max – 4mm.
57. 0.5mm
58. 2 mm
59. 15 mm
60. 1030 to 1105
61. 104 to 119
64. Modified – 185 mm
67. To circulate the oil in SB
68. 1900 mm
69. Brinell hardness number with box spanner and torque wrench tighten the bolt upto
    required torque.
72. Motor suspension unit
73. 8.5 litres
75. 12
76. Centre buffer coupler
77. Two stage suspension
79. By DP test

OBJECTIVE TYPE QUESTIONS:

1.	(c)	2.	(a)	3.	(b)	4.	(c)	5.	(c)	6.	(c)
7.	(b)	8.	(a)	9.	(b)	10.	(d)	11.	(b)	12.	(d)
13.	(c)	14.	(d)	15.	(a)	16.	(a)	17.	(d)	18.	(a)
19.	(c)	20.	(b)	21.	(a)	22.	(c)	23.	(c)	24.	(a)
25.	(c)	26.	(a)	28.	(c)	29.	(b)	30.	(d)	31.	(a)
32.	(c)	38.	(b)	39.	(c)	40.	(d)	41.	(c)	42.	(b)
43	(a)	44.	(c)	45.	(b)	46.	(b)	47.	(a)	48.	(c)
49.	(d)	50.	(b)	51.	pbo_2	52.	(b)	53.	(a)	54.	(a)
55.	(c)	56.	(d)	57.	(a)	58.	(a)	59.	(b)	60.	(b)
62.	(b)	63.	(a)	64.	(b)	65.	(b)	66.	(a)	67.	(c)
68.	(d)	69.	(d)	70.	(c)	71.	(d)	72.	(c)	73.	(c)
74.	(b)	75.	(a)	76.	(d)	78.	(b)	79.	(b)		

81.DU
82. DI
83. 5A
84. AC pulses
85. One lakh ohms
86. 1.6mΩ
87. 3HP
88. Continuity of fuse
89. Charger working
90. Batteries
91. N
92. Gassing
93. Sulphation
94. DI – Electric heat disipaction factor
96. To give dry air and absorb the moisture in the oil
97. Kick

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98. 865V drop out at 740 V
99. High currents
100. c
101. 5
102. Shunting resistance
104. Minizol oil
106. Failure rate percentage per year
108. Rollar bearing
109. Chock the bearings
110. F
111. Supply of power
112. White
113. BDV test
122. 0.08 mm
123. 13mm (11.5 to 13.5mm)
124. Close
125. 4.5 kg/cm^2
127. 60/minute
128. 3.5 kg/cm^2
130. 8 to 10 kg/cm^2
133. 800-900 grams
134. 8.5 ± 1mm
135. 5 to 8 kg contact (C118) air gap 16 to 18 mm
137. Cool the transformer winding
138. Temperature
141. Sulphuric Acid
142. 1240
143. C108
144. Specific gravity
147. 60 KVA
148. CGRS
150. 380 to 415V output 110V
151. C
152. 230V AC
153. 2mm
154. 2mm
155. 120 sq mm
156. 3000 rpm
159. 1.6 mΩ
160. 3 X 3200Ω
161. 0.4Ω
162. 210Ω
163. 0.03mΩ
164. 1250Ω
165. 0.03Ω
166. 0.03Ω/0.03Ω/0.03Ω/0.03Ω
168. Amps
169. Sarge comparision tester
170. 75A
171. 4
172. Air forced
173. 535VDC 340A

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175. 2.1mm
176. 0.6 to 1.5mm
177. 60 new/32 condm
184. 5kg/cm^2
185. 6kg/cm^2
186. 0.7kg/cm^2 for 5 minutes
187. 0.7kg/cm^2 for 5 minutes
190. 8 to 9.5kg/cm^2
191. 4.5/5.0kg/cm^2
192. 0.2 to 1.0 kg/cm^2
193. 0.6 kg/cm^2
195. 4.6 to 4.9 kg/cm^2
196. 4.4 to 4.7 kg/cm^2
198. 2.8/4.2 kg/cm^2
199. 9.6 kg/cm^2
200. 11.0 ± 2kg/cm^2
201. 11.5 kg/cm^2
202. 3.5 kg/cm^2
203. 6/12 sec
204. 9/12 sec
205. 6 to 9 sec releasing 9-12 sec
206. 20/25 sec
207. 6 to 10 kg/cm^2
208. 6 to 10 sec
209. pan to pan
210. 4.9kg/cm^2
211. 6 kg/cm^2
212. Throttle valve
213. Throttle valve
215. CP
216. HS4
217. MR-4
218. Replacement of ½” from ¾” from MR-3 to AFMV and additional, C2 relay valve to
BP
219. Provision of after cooler drain cock in extention position
221. 3.75 kg/cm^2
222. Provision of separate fuse for static inverter central cut
223. 58/53 cm^2
224. 1.4 to 1.7 kg/cm^2
225. MRC-2
226. CPS
227. 35mm
228. 2 kg/cm^2
230. IA, IB, IC, AOH, IOH
231. T.I, G/C, V/C
234. 18 months
235. 54 months or 6 lakhs kms
236. 9 years or 12 lakhs kms
237. 135 days
238. 90 days
239. 6 years or 8 lakhs kms

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240. 36 months – 4 lakhs kms
242. 135 days
243. 45 days
245. 2500
246. E5
247. M3M5
248. M6
249. PPIO
250. Drawing
251. Technical
253. Major
254. E3TM
255. E6
256. M6
257. NS
258.
1. Chittaranjan Loco works
2. Central organization for modification of work shops
3. Director general of supply & disposal
4. Machinery & plant
5. Rolling stock programme
6. Proprietary article certificate
7. Part list no.
8. Rail India Technical Economic Services Ltd

259. 2 Lakhs
260. 5 Lakhs
261. 10 Lakhs
262. 10,000/-
263. S-1302A
264. S-1830
270. 70%
271. 20%
277. SF-III
279. SF-V
281. 20
286. Penalty
289. 1968
314. Sr.DPO
316. 30%
318. Two
320. SSE
321. SSE
322. Schedule of Powers
331. Member of All India Services/RPF
332. Casual
338. SF-11
339. SSE

1. (c) 2. (ii) 3. (a) 4. (b) 5. (a) 6. (i)
7. (a)

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Match the following (3Ø)

1. a-4, b-1, c-6, d-7, e-3
2. a-2, b-1, c-5, d-3, e-4
3. a-2, b-3, c-1, d-5, e-4
4. a-2, b-3, c-1, d-5, e-6
5. a-4, b-2, c-5, d-1, e-3
6. a-2, b-5, c-1, d-4, e-3
7. a-3, b-5, c-4, d-2, e-1
8. a-2, b-3, c-5, d-4, e-1
9. a-2, b-3, c-4, d-1
10. a-3, b-2, c-5, d-1, e-4
11. a-2, b-4, c-1, d-3
12. a-2, b-4, c-1, d-3
13. a-2, b-4,c-1, d-3
14. a-2, b-3, c-1, d-4
15. a-2, b-1, c-5, d-4, e-3
16. a-2, b-3, c-1, d-4

CHOOSE THE CORRECT ANSWER

1.	(b)	2.	(b)	3.	(b)	4.	(a)	5.	(c)	6.	(c)
7.	(c)	8.	(b)	9.	(d)	10.	(c)	11.	(d)	12.	(a)
13.	(c)	14.	(c)	15.	(b)	16.	(c)	17.	(c)	18.	(b)
19.	(b)	20.	(d)	21.	(b)	22.	(b)	23.	(c)	24.	(b)
25.	(a)	26.	(b)	27.	(b)	28.	(b)	29.	(a)	30.	(d)
31.	(a)	32.	(a)	33.	(a)	34.	(a)	35.	(a)	36.	(c)
37.	(d)	38.	(d)	39.	(c)	40.	(d)	41.	(c)	42.	(c)
43.	(d)	44.	(d)	45.	(c)	46.	(c)	47.	(c)	48.	(b)
49.	(a)	50.	(a)	51.	(b)	52.	(a)	53.	(d)	54.	(d)
55.	(d)	56.	(b)	57.	(c)	58.	(c)	59	(c)	60.	(c)
61.	(b)	62.	(d)	63.	(c)	64.	(d)	65.	(d)	66.	(d)
67.	(b)	68.	(c)	69.	(d)	70	(b)	71.	(d)		

FILL IN THE BLANKS

1.Line voltage CKT
2. 6000 HP
4. 3Ø slipring Induction motor
5. 47 tonnes
6. 100 kmph
13. 7
15. 4
16. 4 number of GTOs and 4
17. 20.5+2%
18. 9 years ± 6 months
24. 5
27. 4
28. 50°C
46. 190
48. 154
49. BUR-1

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51. 25KV/200V
54.12/2
55. Train Communication Network
56. DCU2
57. DCU3
58. Reducing inrush current
59. Bogie isolation due to high converter oil temperature
60. VCU1 rack
61. 17.5 kV and 30 kV
62. 64, 80
63. Vigilence, Over speed and Fire
64. CEL will remain active for 10 mins.
65. Main power off
66. 10 kmph
67. Simulation
68. MU train bus
69. 30
70. WAG7
71. SHC 120

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SYLLABUS FOR PROMOTION AS JE-II IN SCALE Rs. 9300-34800+4200(GP) IN ELECTRICAL/TRS ORGANISATION AGAINST 25% LDCE QUOTA

TRACTION ROLLING STOCK

Should have good knowledge about:-

I.
a) General details of WAP-4, WAP-5, WAP-7 and WAG-5, WAG-7, WAG-9 and 1 A.C/3-Phase Locomotives and working of major equipments.
b) Power, Auxiliary and control circuits.
c) Trouble shooting, Loco repairs and over-haul of all electrical equipments.
d) Pneumatic circuit, brake system
e) Various types of schedules.
f) Different lubricants used in WAP-4/5/7 and WAG-5/7/9 & 1 AC/3-Phase Locomotives.
g) Electrical fire, their causes and prevention
h) Safe working rules/Electricity Act.
i) Shock treatment, first aid and use of fire extinguisher.
j) Analysis and invention of failures and TRD requirement of workers.
k) Maintenance of records in PPIO.

II.
a) Railway service conduct Rules, Pass Rules, D&A Rules, Hours of employment regulations, payment of wages Act, WC Act.

b) Procurement of stores – stocked items and non-stocked items – Imprest stores Disposal of unserviceable stores – stock verification.

c) Rules and Regulations about Official Language.

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