

TRUE/FALSE:

1. Safety valve protects pneumatic circuit from low pressure.(T/F)
2. Leveling valve releases pressure when height of cock becomes low.(T/F)
3. Short circuiting in tap changer circuit is protected by OL-5 Relay.(T/F)
4. Single pantograph of EMU/MEMU Rake can be lowered from driving cab..(T/F)
5. When NVR relay opens then Tap changer stops working..(T/F)
6. QLA is an Earth fault relay(T/F)
7. ATFEX is provided to supply the armature of Traction motor(T/F)
8. 6 Kg. Feed valve feeds the FP pressure(T/F)
9. QOA is a Earth fault relay for Power Ckt..(T/F)
10. Q 30 is no volt or low volt relay(T/F)
11. Arno supply power to Traction Motor(T/F)
12. BP pressure should not be more than 700 gm. in 5 minutes(T/F)
13. SL filters the A.C ripples (T/F)
14. If CCLS melts notch will not progress(T/F)
15. MPH is provided to cool the TF oil(T/F)
16. SL is provided to convert A.C to D.C(T/F)
17. BP pressure is created to fill the auxiliary reservoir of a coach(T/F)
18. Minimum brake power % of a goods train is 80%(T/F)
19. Wedging of Q 44 is permissible(T/F)
20. 110 Volts D.C required to operate the control Ckt.(T/F)
21. QOP may drop in HOBA OFF position in a locomotive(T/F)
22. If C 105 fails to pick up the loco will trip in Operation 'O' in WAG-5 class of locomotive(T/F)
If QRS fails to pick up there will be sign of ICDJ in WAG-7 class of locomotive(T/F)
If QCVAR fails to pick up loco will trip in Operation(T/F)
Private No. is required for Home signal in T/369(3b)(T/F)
23. PLC is required for defective last stop signal in reversible line when block instrument is working. (T/F)
24. After passing automatic signal at ON 150 mts. is the minimum distance of a train from the train in advance(T/F)
25. At the time of passing automatic signal at ON the speed of the train should not be more than 25 KMPH.(T/F)
26. The speed of first train should not be more than 25 KMPH when single line working in double line section.(T/F)
27. When visibility is impaired due to consequence of fog the speed of the train should not be more than 60 KMPH in absolute block system(T/F)
28. When Calling ON signal is previously glowing the train will pass the signal(T/F)
29. Authority to Proceed for relief engine in Automatic Block signaling section is T/C 912(T/F)
30. Calling ON signal is provided at last stop signal(T/F)
31. T/511 is the starting order in non-signaling territory(T/F)
32. C 105 is an electro-pneumatic contactor(T/F)
33. QD is connected with two traction motors of a block(T/F)
34. QRS is related with RS pressure(T/F)
35. If EFDJ coil does not pick up then DJ will not close(T/F)
36. FP pressure is required to supply the brake in twin pipe operation(T/F)

37. MVSI-1 fails to start the loco will trip immediately after closing DJ(T/F)
 38. If CCLS melts there will be total loss of tractive effort in case of dual / air brake loco(T/F)
 39. If CCPT of rear loco melts in case of M/U operation the PT of rear loco will not raise(T/F)
 40. Wheel slipping tendency will be detected if there is trouble in QD connected traction motor(T/F)
 41. Ammeters are connected with TM 3 & TM 4 in WAG 7 class of locomotives(T/F)
 42. Feed pipe helps to charge DV(T/F)
 43. In case of single phasing in MVMT-1 , QOA will drop(T/F)
 44. Minimum BA voltage of a loco is 80 V.(T/F)
 45. If QD related any one TM is isolated by HMCS then that QD will not pick up(T/F)
 46. If R 1 cock is made isolate then RS will not be maintained by MR(T/F)
- QLM coil remains in energized condition even after tripping of DJ(T/F)
47. Equalizer beam helps to pull bogie with body of loco on run(T/F)
 48. Permissible length of wheel skidding mark is 50 mm.(T/F)
 49. If NR MCB trips , there will be total loss of tractive effort(T/F)
 50. If Asstt. Drive applies his emergency brake, Auto Flasher light system will work(T/F)
 51. If Wheel No. 9 & 10 slip , notch will regress in WAG 5 class of locomotive(T/F)
 52. CCPT protects SMGR control Ckt.(T/F)
 53. If oil level of TF tank drops beyond permissible limit loco will trip via QLM(T/F)
 54. If CCDJ of rear loco melts, there will be sign of ICDJ for rear loco only in case of Multi operation of locomotive. (T/F)
 55. Rating of fuse CCPT is 6 amps.(T/F)
 56. Additional CCBA is located near fuse panel board. (T/F)
 57. Rating of fuse CCBA is 35 amps.(T/F)
 58. Relay Q30 stands for Low/No voltage relay.(T/F)
 59. Q-20 relay picks up when over voltage occurs in TM.(T/F)
 60. C-105 is the contactor for MVRF.(T/F)
 61. QD2 relay is connected between TM 4 & 5.(T/F)
 62. In WAG₇ loco AM₁ is connected with TM-3.(T/F)
 63. If no pilot lamp is glowing, you will check CCLS fuse. (T/F)
 64. In WAG₇ U-2 is connected with TM-6. (T/F)
 65. QLA is an Earth fault relay(T/F)
 66. ATFEX is provided to supply the armature of Traction motor(T/F)
 67. 6 Kg. Feed valve feeds the FP pressure(T/F)
 68. QOA is a bonding relay for Power Ckt.(T/F)
 69. Q 30 is no volt or low volt relay(T/F)
 70. Arno supply power to Traction Motor(T/F)
 71. BP pressure should not be more than 700 gm. in 5 minutes(T/F)
 72. SL filters the A.C ripples (T/F)
 73. If CCLS melts notch will not progress(T/F)
 74. MPH is provided to cool the TF oil(T/F)
 75. SL is provided to convert A.C to D.C(T/F)
 76. BP pressure is created to fill the auxiliary reservoir of a coach(T/F)
 77. Minimum brake power % of a goods train is 80%(T/F)
 78. Wedging of Q 44 is permissible(T/F)
 79. 110 Volts D.C required to operate the control Ckt.(T/F)

80. QOP may drop in HOBA OFF position in a locomotive(T/F)
81. If C 105 fails to pick up the loco will trip in Operation 'O' in WAG-5 class of locomotive(T/F)
82. If QRS fails to pick up there will be sign of ICDJ in WAG-7 class of locomotive(T/F)
83. If QCVAR fails to pick up loco will trip in Operation(T/F)
84. If CCLS melts there will be sign of total loss of tractive effort in dual brake loco(T/F)
85. "W" will bethroughafter12thnotchtoHVside.F
86. "TL" willcomeinthecircuitwhenT9isclosed.T
87. When OLP acts ABB will not trip. F
88. EFRP is an earth fault relay for transformer primary. F
89. 48 diodes are provided in main rectifier. T
90. Panto rising time is 6 to 10seconds.F
91. Servomotor fitted on under gear. F
92. Main rectifier output is 535 VDC.T
93. Normal lights are working in 141 V. AC. (florescent lamps)T
94. Minimum pressure is required to close ABB is 4.5kg/sm².T
95. When LTR de-energized ABB will not open. F
96. OVR acts motor contactor will open.F
97. CLR acts Tap changer will come to 'O'.T
98. If RF functioning RFAR will energize. T
99. CBAR acts motor contactor will not open. F
100. When EFRA II acts ABB will not trip. F
101. T 1 to T 6 is transfer switches.F
102. Emergency lights are working in 141 VAC.F
103. Theverticalloadfromcoachbodytobolsteristransferredthroughsidebearers.T
104. The type of EMU wheel is RETYRED wheel.T
105. NVR is having no indication. T
106. MCP safety valve blows when the pressure exceeds 8.0 kg /cm².T
107. EMU Bogie type is BOBO.T
108. EMU/MC Bogie frame type is box. F
109. Servo gem RR3 grease is using for axle box. T
110. When DMH is operated emergency brakes takes place. T
111. The drop forging temperature is 1000 °C to 1100°C.T
112. RF is having Air flow relay.T
113. EML1 is DC relayF
114. Auxiliary motors are working is 110 VDC.F
115. Line Voltmeter is provided in Aux Circuit. F
116. If NVR de-energized unit will respond. F
117. If two bridges fail CBAR will act. T
118. Traction Motor's HP is 224 cont/251 per hour. T
119. If NVR fails indication lamp will glow. F
120. LTR fails ABB will not open.F
121. 160A fuse is provided for MCP.T
122. DL is only in circuit up to 10thnotch.T
123. 500 A fuse is provided in Main Rectifier.T
124. KVA of EMU transformer is1000.T
125. EMU battery voltage is min 85 V.T
126. HP of MCP is12.T
127. CC2 contactor is closed MCP will start. F

128. TC bogie frame type is ltype. **T**
129. When ABB is closed 3 Aux. motor will start working. **F**
130. To raise the pantograph ABB must be in OFF position. **T**
131. GS3 switch is provided to bypass the MCP. **T**
132. Availability of Aux. II supply is monitored by LTR. **T**
133. When the current exceeds 0.7 Amps, OLP will act. **T**
134. HLVS output is 32VAC/250W. **T**
135. In 15th notches W2, T2, T8, T7 switches are in closed condition. **T**
136. The CLR setting is 500Amps. **T**
137. GS2 is provided to operate control governor. **T**
138. MR reservoir capacity is 120Liters. **T**
139. When MPT handle is moved to shunt position MSTWL will glow and extinguish. **T**
140. If HMV is not de-energised brake binding will take place. **T**
141. Triple valve is used to charge the AUX. Reservoir. **T**
142. Application magnetic valve is provided in EP unit. **T**
143. Duplex check valve setting is 5.0 kg / cm². **T**
144. If OHE supply fails ABB will open through LTR relay. **F**
145. MC bogie frame type is BOX type. **T**
146. If CBAR acts one pair of traction motors to be isolated. **T**
147. T6 will close in 11th and 12th notch. **T**
148. TT - Transformer Thermostat **T**
149. Air suspension spring is provided for improve reliabilities and reduce maintenance. **T**
150. SCHAKU COUPLER is Pneumatic Coupling **F**
151. Parking Brakes are available in Trailer Coaches wheel no- 1,4,5,8. **F**
152. Pantograph raising time 6 to 19seconds. **F**
153. 7 Nos. of reservoir is provided in MC. **F**
154. gear ratio of EMU20:91(1:4.55) **T**
155. Double row self-aligning spherical roller bearing is provided in axle box. **T**
156. New wheel dia of EMU952mm. **T**
157. Condemn. Size of wheel dia in MC 877mm and in TC 857mm. **T**
158. Breadth of the tyre is 130mm. **T**
159. Axle load 20 tones in MC and 16 tones in TC. **T**
160. Wheel pressing pressure 75 to 106 tones. **T**
161. Gear pressing pressure is 65 to 85 tones. **T**
162. Servo coat 170T is used for gear case. **T**
163. Servo line 68 oil is used for dash pot. **T**
164. Servo fringe 12 is used for shock absorber. **T**

Multiple choice/Objective Question:

- Brake cylinder pressure of EMU T/coach with HCC Bogie
(a) 1.6 kg/cm² (b) 2.0 kg/cm² (c) 1.2 kg/cm² (d) 1.8kg/cm²
- OHE voltage of Traction supply-
(a) 11KV (b) 33KV (c) 25KV (d) 27.5KV
- Primary current setting of OLP Relay, CT
(a) 120A (b) 0.68A (c) 0.7A (d) 160A
- Type of EMU/MEMU Bogie:-

- (a)CO-CO (b)BO-BO-BO (c)B'-B' (d)BO-BO
5. Rating of Traction control MCB in EMU/MEMU is
 (a) 10A (b) 5A (c) 15A (d) 32A
6. Temp setting of TTR in EMU Transformer -
 (a) 65°C (b) 75°C (c) 125°C (d) 85°C
7. NVR is provided in (a) Aux-II circuit (b) Aux-I Circuit (c) Un-tapped portion of Transformer (d) none of the above.
8. (CT on Roof Bushing is connected with
 (a) EFR Relay (b) OVR Relay (c) OLP Relay (d) CBAR Relay
9. Head Light of EMU/MEMU operated from-
 (a) 141 V AC (b) 110 V DC (c) 266 V AC (d) 127 V AC
10. EFRA-II Relay is provided for the protection of
 (a) Earth-fault in BA circuit (b) Earth-fault in Auxiliary-II circuit (c) Earth-fault in power circuit (d) None of the above.
11. Auxiliary Rectifier supplies dc supply to
 (a) Baby Compressor (b) Main Compressor (c) BA Charger (d) Head Light
12. Coach Fan of EMU/MEMU is operated from
 (a) 110 V DC (b) 266 V AC (c) 141 V AC (d) 700 V AC
13. OL-5 is provided for protection of short circuit is
 (a) Tap changer (b) Auxiliary Rectifier (c) Traction Motor (d) Main Rectifier
14. Smoke emission from TFS –
 (i) Put OFF NR MCB (ii) Trip DJ (iii) Put OFF HBA (iv) Fail the loco
15. In case of Hot Axle –
 (i) Check free movement of related axle (ii) Isolate the related TM
 (iii) Isolate Bogie isolating cock of related bogie (iv) Fail the loco
16. In case of No Tension on line –
 (i) Check Pantograph (ii) Put MP on '0' (iii) lower panto (iv) Try to close DJ
17. To start Dynamic braking –
 (i) Put MP on '0' (ii) Put MP on 'N' (iii) Put MP on '+' (iv) Put MP on 'P'
18. If LSB does not extinguish after putting MPJ on F or R –
 (i) Check Q 50 (ii) Check J1 & J2 (iii) Check CTFs (iv) Check C 145
19. BP drops on Run in straight route –
 (i) Stop the train (ii) Trip the loco (iii) Look back (iv) Lower panto
20. If QOA drops repeatedly –
 (i) Check Arno (ii) Put OFF HQOA (iii) Fail the loco (iv) Check Aux. motors

21. If helical spring is in broken condition for WAG 5 class –

- (i) Work the train in restricted speed
- (ii) Fail the loco
- (iii) Work the train normally
- (iv) Reduce the load

22. MVMT 2 is not working in contactor closed condition –

- (i) Trip the loco
- (ii) Check the continuity of power supply
- (iii) Isolate MVMT 2
- (iv) Isolate MVSI 2

23. RS pressure is not building up at the time of fresh energization –

- (i) Check the leakage
- (ii) Isolate R 1 cock
- (iii) Isolate MCPA
- (iv) Raise Panto

Name The Followings -

24. Q118 – (i) Aux. Protection Relay (ii) Aux. Working Relay (iii) Aux. Control Relay
(iv) Aux. Over loading relay.

25. Q46 – (i) GR control Relay (ii) GR progress Relay (iii) GR regress Relay
(iv) GR protection Relay

26. Q100 - (i) Aux. Protection Relay (ii) Aux. Control Relay (iii) Aux. Starting Relay
(iv) Aux. Working Relay

27. Q20 – (i) Traction over voltage Relay (ii) Traction control Relay
(iii) Traction over current Relay (iv) All of the above

28. RGEB – (i) BP charging Relay (ii) Gov. for air brake (iii) BP control Gov.
(iv) Brake application Gov.

29. The arrangement that helps the loco to negotiate curvature –
(i) Side bearer (ii) Centre Pivot (iii) Equalizer beam (iv) None of the above

30. Before starting of train guard applies brake for –
(i) Continuity testing (ii) BP leakage testing (iii) Emergency brake testing
(iv) All of the above.

31. C2 Relay valve –
 (i) BP charging Valve (ii) Loco brake application valve (iii) Feed pipe charging valve (iv) None of the above
32. EFDJ – (i) DJ holding coil (ii) DJ closing coil (iii) DJ tripping coil (iv) None of the above
33. Q30 – (i) No volt relay (ii) High voltage relay (iii) No current relay (iv) All of the above
34. Which MCB will you check if RFAR is de-energised? Rectifier Phase MCB(10A)
35. Find out the circulation Relay among the followings: -
 BIR, RFAR, CBAR, ACLR
36. What happen in case of over current in TM? Q20 Pick up, Auto notch regression
37. Which MCB will you check if NVR is de-energised? NVR MCB
38. Which Relay will be dropped in case of over current in Tap-Changer? OL6
39. Write the full form of the followings: -
 WCO(Winding Change Over), ASR(Auxiliary Supply Rectifier), TL(Tap Changing Reactor) , RFBL (Rectifier Fuse Blown Light)
40. Which MCB will you check if ACP not working though CC2 is closed? ACP positive MCB is set
41. How many numbers of Brake Cylinder are fitted in a Motor Coach? 08 Nos
42. Which MCB will you check if all ABBs are not closing. Panto/ABB/VCB control 15A
43. How many reservoirs are provided in a Motor Coach? 7 Nos
44. What problem will you face if Aux-I circuit has no supply? SR will not pick up
45. Which MCB will you check if TTR acts? OP & Radiator Motor MCB
46. Which Relay protect over current in TM – 4? OL4
47. Which fuse will you check when BA voltage is “0”? Control Fuse (32A)
48. Which indication will you get if Aux-II circuit has no feed? ARTL Lamp glowing
49. Which Governor has no bypassing switch? ABG
50. State the full form of SIV? (Static Converter)
51. What is the rating of fuse CCINV? 6 Amp
52. Which is the contactor for MVRF ? C145
53. What is the position of MU2B in a rear loco for a MU? Trail
54. What is the prescribed SMGR pressure? 3.5 kg/cm²
55. What is the location of 110 MCB in 3-phase locomotive? SB2
56. What is the location of 237.1 MCB in 3-phase locomotive? SB1
57. What is the location of 112.1 MCB in 3-phase locomotive? SB2
58. Q46 is a relay for – (i) GR control Relay (ii) GR progress Relay (iii) GR regress Relay (iv) GR protection Relay

59. If QOA drops repeatedly, you will do –

- (i) Check Arno (ii) Put OFF HQOA (iii) Fail the loco (iv) Check Aux. motors

Write the statement is CORRECT/WRONG:

1. Private No. is required for Home signal in T/369(1)(C/W)
2. PLC is required for defective last stop signal in reversible line when block Instrument is working(C/W)
3. After passing automatic signal at ON 150 mts. is the minimum distance of a train from the train in advance(C/W)
- 4 .At the time of passing automatic signal at ON the speed of the train should not be more than 25 KMPH(C/W)
5. The speed of first train should not be more than 25 KMPH when single line working in double line section(C/W)
6. When visibility is impaired due to consequence of fog the speed of the train should not be more than 60 KMPH in absolute block system(C/W)
7. When Calling ON signal is previously glowing the train will pass the signal(C/W)
8. Authority to Proceed for Relief engine into an occupied Block Section is T/A 602(C/W)
9. Calling ON signal is provided at last stop signal(C/W)
10. T/509 is the Authority to receive a train on an Obstructed Line(C/W)
- 11.C 145 is an electro-pneumatic contactor(C/W)
12. U2 is connected with TM-6 in WAP-4 (C/W)
13. CGR-1 is connected to outer ring (C/W)
14. PHGR works between 6 to 32 notches (C/W)
15. TFWR auto transformer is provided with 1 to 32 taps. (C/W)

16. Minimum oil level of Main Transformer should be above 15°C (C/W)
17. L1,L2 are Cam Contactor (C/W)
18. QLM is Mechanical Relay (C/W)
19. RGEBS is pressure Relay (C/W)
20. If Asstt. Drive applies his emergency brake , Auto Flasher light system will work (C/W)
21. QOA drops due to smoke in TFS (C/W)
22. AFI indicates the position of the brake banded coach / wagon (C/W)
23. Air pressure for SMGR comes from RS (C/W)
24. C 107 will not close if C 105 fails to close (C/W)
25. If MVSI-1 fails to start the loco will trip immediately after closing DJ (C/W)
26. 1000 Amps is the starting current for WAG 5 class of locomotives (C/W)
27. When Q 100 is reenergized TM contactors will not close (C/W)
28. LSDBR will glow at the time of dynamic braking (C/W)
29. If Q 50 chatters there will be sign of total loss of tractive effort (C/W)
30. If QTD 105 does not pick up both MVMT 1 & 2 will not work (C/W)
31. QLA protect aux. Power ckt. From over voltage (C/W)
32. Speed of train less than 25 KMPH dynamic braking will be in service (C/W)
33. After closing of DJ if BLRDJ is released Q 45 is de-energised
34. After putting HBA ON Q 44 energise (C/W)
35. Time-lag of relay Q 118 is 0.6 sec. (C/W)
36. Time-lag of both relay QTD 105 & 106 is 0.4 sec. (C/W)
37. Relay QD looks after the working of arno (C/W)
38. In Operation 'O' loco trips on 1st notch (C/W)
39. In Operation 'IA' loco trips after 5th notch (C/W)
40. Static converter converts single phase to three phase (C/W)
41. DL will not come in the circuit after 10th notch (C/W)

ONE WORD QUESTIONS ON EMU/MEMU:

ELECTRICAL

1. OLP relay setting is 0.7A Amps.
2. T1 to T6 switches are called as tapping switches.
3. OL6 relay is protecting the tap changer.
4. Six in EMU/3 in MEMU Nos. Of bridges are connected in main rectifier.
5. CLR setting is 500 Amps.
6. OVR setting is 540 volts.
7. Power circuit is protected from earth fault by EFRP relay.
8. In 15th notch W2, T2, T8, T9 switches will be in closed condition.
9. When the current exceeds 900 Amps OL3 will act.
10. OP motor is circulating the transformer oil.
11. RF motor is cooling the main rectifier.
12. KF1, KF2 motor is cooling the transformer oil.
13. NVR relay is ensuring the Aux. II 266 V AC supply.
14. CC2 contactor is provided in Aux. Compressor circuit.
15. CC1 contactor is provided in MCP circuit.

16. To get rear motor coach BA supply **CCOS**s witch to be put in emergency position.
17. Synchronize wire no. is **13**.
18. HOBA is protecting the **Aux II** circuit.
19. Static battery charger (SBC) input **266 VAC** and output is **110VDC**.
20. Aux. supply rectifier (ASR) input is **141VAC** and output is **110VDC**.
21. **LTR** relay is provided to ensure the MCP 110 V DC supply.
22. MCP motor HP is **12**.
23. HLVS input is **141VAC** and output is **32VAC**.
24. Fans are operated in **141 V AC** supply.
25. NLVS input is **141 VAC** and output is **110VAC**.
26. EML relay is working in **141 V AC** supply.
27. **EFRA II** is the earth fault relay for Aux. II circuit.
28. Aux. Rectifier is located in Main **RECTIFIER CUBICLE**.
29. If the TFR oil temperature exceeds 75 ° C, **TTR** relay will act.
30. When gas forms in TFR oil, **BIR** relay will act.
31. If RFAR not energized **MOTOR** contactor will not close.
32. If EFRP is unable to reset **HEFRP** to be kept in fault position.
33. AC aux. Motors are operated in **266 VAC**.
34. To close the ABB **TSS** to be kept in RUN position.
35. After releasing the HVCB closes witch, ABB is holding through **LTR** interlock.
36. ABB governor setting is **5,3 Kg/cm²** and **4.5 Kg/cm²**.
37. For energizing of CR set coil **MCP starts** which to be pressed.
38. When BA voltage is less than 85V **CCOS** switch to be kept in emergency position.
39. To reset the OL relays **CONTROL** switch must be in OFF position.
40. **EP brake** will not work when jumper cables are disconnected.
41. **RFAR** ensures the working of rectifier fan motor.
42. T9 will close in all **ODD** notches.
43. RTL, TL will come into circuit only in **EVEN** notches.
44. DL will be in the circuit up to **10 th** notch.
45. **'H' class** insulation is used in traction motor components
46. If MR pressure is less than 6 kg/cm² **CG1** governor will close.
47. In EMU automatic progression is ensured **by CLR 1&2** relays.
48. OHE supply is **25KV AC 1Ø 50c/s**.
49. Direct contact between positive and negative is called **SHORT CIRCUIT**.
50. To calculate the current, the formula is **V/R**.
51. **DCP** fire extinguisher is used in EMU/Loco.
52. **DC SERIES** type of traction motor is used in EMU.
53. **K1&K2** is used to change the rotating direction of traction motor.
54. One pair of traction motor can be isolated when **CBAR** is acted.
55. Total Nos of indication lamps in the driver's desk are **EIGHT**
56. **CBAR** will acts when two bridges fail in main rectifier.
57. If CBAR acts **ONE PAIR** Nos of traction motor to be isolated.
58. MCP is operated in **110V. DC** voltage.
59. EMU Battery capacity is **90AH**.
60. **10** Nos of battery is provided in EMU/MC05 No of cell in a Battery.
61. Total voltage of one battery is **11** Volts total voltage of 10 batteries are **110** Volts.
62. SL, ASL is provided for **FILTERING AC RIPPLES** purpose.
63. **TRACTION AMMETER** is provided to measure the flow of current in the traction motor.

64. **5 (FIVE)**. Nos of winding are provided in EMU transformer.
65. EMU transformer oil quantity is **688Lts.**
66. Tapped winding voltage is **391 VA**
67. Individual tapping voltage is **70 VAC.**
68. Auxiliary winding voltage is **266VA**
69. **SL,DL** and TL is provided in the choke box.
70. If the temperature exceeds **75°C** TTR will act.
71. **MCS1&MCS2** is used to isolate the traction motors.
72. Main rectifier input **782 VAC** and output is **535 VDC**
73. Minimum voltage required to energize AC BG EMU is **85.**
74. When TM-1 is overloaded OL1 relay will energize and **MOTOR CONTACTOR** will open.
75. For energizing CR trip coil **42 +** wire to be energized.
76. Which switch will go to HV position from **13th** notch when MPT is brought to full power position.
77. While closing ABB, **ABB Open** lamp will extinguish **BCFR &RECT-Fuse BLOWN** lamp will glow and extinguish.
78. If MR drain cock is broken **CIC** COC to be closed and work.
79. Maximum BC pressure during brake application is **1.5 Kg/cm²** in MC and **1.8 Kg/cm²** in TC.
80. For energizing SR all **TAPPING** contactor must be opened and **NVR** relay should be energized condition.
81. When pressure exceeds in transformer tank **PRV** valve will burst and **ABB** will trip.
82. When battery voltage is "0" **2.5A,35A(MCBs)** and **32A(Fuses)** to be checked.
83. To reset OL, **BL** should be ON and **CONTROL** should be in OFF position.
84. **MR** and **BP** pressure admitted to BC during Emergency brake application.
85. When Battery charger is failed in rear MCB **CFR** pilot lamp will glow in leading MC.
86. When TTR acted **UFL** and **MSTWL** pilot lamp will glow while moving MPT to shunt.
87. MCPA creating pressure in **PANTO, ABB** and **CONTROL** reservoirs
88. If horn reservoir drain cock is damaged and MR not maintaining **MREndCOKC** to be closed.
89. To raise pantograph **ABB** must be open.
90. Minimum pressure required for closing VCB is **4.6 Kg/cm²**
91. If ABB not closing **PANTO/ABB** MCB to be checked in Driver's desk and **15A** MCB to be checked in fuse/MCB panel.
92. **CC2** is the contactor for MCPA and **CG2** is its Governor.
93. If EFRP is unable to reset **HEFRP** to be kept in **FAULT** position.
94. When there is no voltage in OHE **ABB** will trip through LTR.
95. **19** No's of pins is provided in each jumpers.
96. Auxiliary motors are working in **266VAC.**
97. When ASR supply is available **LTR** relay will energize.
98. **BCFR** Relay will energize when battery charger is properly working.
99. If anyone unit MCP to be isolated **SYNCHRONISE** MCB to be kept OFF position.
100. While on run **REVERSERKEY** shall not be brought to neutral position.
101. Traction motor HP is **224** (cont) and **251**(1Hr).
102. OL5 will act if the supply exceeds **4000A**
103. **DILUTED SULPHURIC ACID** electrolyte is used in EMU battery.

MECHANICAL:

1. Wheel dia new is 952mm.
2. Wheel gauge is 1600 (+1.-2)mm.
3. Track gauge is 1676mm.
4. Thickness of wheel is 130mm.
5. Permitted length of flat tyre is 50mm.
6. Crow clearance in MC is 38±6 mm and in TC is 42±6mm.
7. Length of EMU coach is 20726mm.
8. Buffer height from rail is 1090mm.
9. Centre buffer coupler height is 1035mm.
10. Height of cattle guard from rail is 200±15mm.
11. SERVU LUBE 100 oil is used for suspension bearing.
12. SERVOGEM RR3 grease is used for axlebox.
 13. In the BO-BO type bogie, 'B' stands for NUMBER OF AXLES PER BOGIE(TWO) and 'O' stands for INDIVIDUAL DRIVE OF TRACTIONMOTOR.
14. SHOCK ABSORBER is provided to share the load of secondary spring.
15. The purpose of shock absorber is TO SUPPORT SECONDARYSPRING.
16. Primary suspension is between AXLE BOX and BOGIE FRAME.
17. Secondary suspension between BOGIE FRAME and BOLSTER.
18. Dia of TC wheel is 952mm
19. Breadth of TC wheel is 130mm
20. Total length of TC axle is 2286 ±1mm.
21. AXLE GEAR is provided in MC axle only.
22. Brake block thickness (New) is 49mm.
23. Brake block thickness (Condemn) is 18mm min MC and in TC 16mm.
24. RETYRED type of wheels are used in EMU.(At present SOLID wheel)
25. EIGHT No's of brake cylinder is provided in MC.
26. EIGHT No's of brake cylinder is provided in DELUXE TC(FOUR in EMU/MEMU)
27. Suspension bearing lubricant is SERVOLINE100.
28. SERVO COAT 170T Lubricant is using for Gear case
29. SERVOLINE 68 lubricant is using for Dashpot
30. SERVOLINE 68 lubricant is using for Side bearer
31. SERVOLINE 68 lubricant is using for Center pivot
32. SERVOPRESS150 lubricant is using for Main Compressor.(Also SERVOPRIME76)
33. SERVOPRESS150 lubricant is using for Aux Compressor. .(Also SERVOPRIME76)

34. Pantograph seating pressure is **10.0Kg**.
35. Pantograph contact pressure **7.0Kg**.

PNEUMATIC:

1. **EP** brake will not work when 'A' jumper cables are disconnected.
2. If BP pressure is less than 5 kg/cm^2 **CONTROL** governor will not close.
3. If MR pressure is less than 6 kg/cm^2 **EQUIPMENT** governor will not close.
4. Maximum MR Pressure is 7.0 kg/cm^2 .
5. Maximum BP pressure is 5.0 kg/cm^2 .
6. Maximum BC pressure in MC is 1.6 kg/cm^2 and in TC is 2.0 kg/cm^2 .
7. **BA** relay is provided in brake system.
8. **FIVE** Nos. of position in brake controller.
9. Triple valve is used for **AUTO** brake.
10. Aux. Reservoir pressure is used for **LTTEST, PANTO RAISE and ABB close**.
11. To release the BC pressure **HMV** valve must be in opened condition.
12. To release the BC pressure **AMV** valve must be in closed condition.
13. If **HMV** valve is not opened, brake binding will takes place.
14. If BP is destroyed **AUTO** brake will takes place.
15. Wire no. **38** is for Application magnet valve.
16. Wire no. **37** is for holding magnet valve.
17. Equalizing reservoir capacity is **11** lts
18. Control reservoir capacity is **80** lts
19. Main reservoir capacity is **120** lts
20. Panto reservoir capacity is **60** lts
21. Horn reservoir capacity is **39** lts
22. BC pressure in DELUXEEMU/MC is 1.5 kg/cm^2 and in TC is 1.2 kg/cm^2
23. **BIC** is provided to cut the pressure to brake cylinder.
24. **EPIC** is provided to cut the MR pressure to EP unit
25. **ICA** is provided to cut the BP pressure to EP unit.
26. Main comp governor closes in 6.0 kg/cm^2 & opens in 7.0 kg/cm^2 .
27. Aux comp governor closes in 5.3 kg/cm^2 & opens 6.4 kg/cm^2 .
28. Equipment comp governor closes in 4.2 kg/cm^2 & opens 3.2 kg/cm^2
29. Control comp governor closes in 4.2 kg/cm^2 & opens 3.2 kg/cm^2
30. ABG governor closes in 5.6 kg/cm^2 & opens 4.5 kg/cm^2
31. Emergency application valve is provided for **DMH** operation
32. Duplex check valve setting is 5.0 kg/cm^2
33. Main compressor pressure is cooled by **INTERCOOLER & AFTERCOOLER**.

Choose the right answer

1. Current is collected from OHE to A.C. loco through (C)
 - (a) Transformer
 - (b) Circuit breaker
 - (c) pantograph
 - (d) servomotor

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

3. QOP relay is used to detect (c)
 - (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 (c)
 - (a) Transformer
 - (b) Smoothing reactor
 - (c) Silicon Rectifier
 - (d) Circuit breaker

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

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

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

8. Wheel slipping occurs (c)
 - a) due to Down gradient
 - b) due to poor brake power
 - c) if applied tractive effort is more than adhesive weigh to loco
 - d) none of the above

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

- c) 5400KVA
d) 6000KVA
10. In Traction Transformer (d)
 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 (b)
 a) Cooling T.M.
 b) Converting 1Φ to 3 Φa.c.
 c) cooling TFP oil
 d) Converting a.c. tod.c.
12. For changing direction of loco movement, following is used (b)
 a) CTF
 b) Reverser
 c) Shunting contactor
 d) Pantograph
13. In WAG-7 loco is used (c)
 a)SL-30 b)SL-40 c)SL-42 d)None
14. Twin Beam Head Light bulb has twin filament of (c)
 a) 100and110watts
 b) 100and120watts
 c) 100and90watts
 d) 80and100watts
15. BA are used for powering (d)
 a) ARNO convertor
 b) Traction Motor(TM)
 c) Cab heater
 d) Auxiliary compressor(MCPA)
16. Hydrometer is used for measuring (c)
 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)
 a) 2.5kg/cm²
 b) 3.5kg/cm²
 c) 2.0kg/cm²
 d) 5.0kg/cm²

18. Disturbance of neutral axis of rocker ring in a DC motor will result in (c)
a) Poor commutation
b) Increase in voltage
c) Jamming of bearing
19. Gear ratio of WAP4 loco is (b)
a) 18 :14
b)23:58
c)17:57
d)16:65
20. Maximum allowed wheel dia variation in service (c)
a) on same axle is 2.5mm
b) one same bogie is 8mm
c) Both (a) &(b)
d) None
21. The requisition No.fora N.S.item is a) (b)
S1313
b) S1302
c) S1315
d) S1305
22. Maximum Tractive effort of a loco is the (c)
a) Maximum power developed by the loco
b) maximumtorquedevelopedbythelocoat50KMPH
c) maximum starting torque developed by the loco without wheel slipping
d) None is correct
23. Relay to detect abnormalities in TFP is (c)
(a) QRSI
(b) QOP
(c) QLM
(d) QOA
24. For protection of traction motors against to over voltage, following relay is used (b)
(a)QOP (b)Q20
(c)QD (d)QRSI
25. AFL circuit works in case of (d)
a) Train parting
b) Chain pulling
c) Brake application
d) both (a) &(b)

26. The insulation class of an auxiliary motor is (a)
- (a) H Class
 - (b) B Class
 - (c) F Class
 - (d) C Class
27. Panto raising time is adjusted between (a)
- (a) 6to10sec.
 - (b) 5to10sec.
 - (c) 5 to 8sec.
 - (d) None
28. For creating vacuum required for pneumatic brake system following equipment issued (c)
- a) compressor
 - b) exhauster
 - c) VA-1Bvalve
 - d) ARNO
29. In a WAP4 loco , the no. of brake cylinders are (c)
- (a)8 (b)10 (c)12 (d)16
30. Bolster is used in the following class of locos (c)
- a) WAG5
 - b) WAM4
 - c) WAP4
 - d) WAG7
31. MU2B and F1 Selector Valves are used to isolate (b)
- 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 (d)
- (a) Acetylene content in oil
 - (b) Methane level
 - (c) inside void in axle
 - (d) surface rack
33. Field shunting in loco is done to (c)
- a. increase tractive effort
 - b. increase power of loco
 - c. increase speed
 - d. both(b)&(c)are correct

34. QLM setting of WAG-7 loco is (a)
a. 9Amp. b.8Amp. c.7Amp. d. 10Amp.
35. Noise / vibration level of bearing is measured in (b)
a. DB b.dB c.GB d.BD
36. EFDG coil of DJ in WAG-7 loco isR4 (b)
a. holding coil b.closing coil c.None
d. Both (a) & (b)
37. Hitachi Traction Motor is a (d)
a. 4PoleDCMotor
b. 6PoleACMotor
c. 4PoleACMotor
d. 6PoleDCMotor
38. In MVMT bearing used is (a)
a. 6313withC3clearance
b. 6312withC4clearance
c. 6312withC3clearance
d. 6313withC4clearance
39. Minor penalties can be imposed to withhold (a)
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)
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? (b)
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 (d)
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)
a. 25KVAC b.1500VDC c. 11KVAC d. 440 VAC

44. MVRH is provided to cool the (c)
a. Traction Motor
b. RSI block
c. TFPR radiator
d. Compressor
45. WhatisthetimeintervalbetweenIAandIBscheduleofWAG-7locois (b)
..... days
a.45 b.60 c.90 d.30
46. Loco brake applies.....kg pressure (b)
a.2.0 b.3.5 c.1.5 d.7.0
47. “Back lash” term is related to..... (d)
a.TFP b. Battery c.CBC d. Gears
48. There arenos. of main poles(MP)in a Hitachi TM. (a)
a.6 b.4 c.2 d.12
49. The lubricant used in suspension bearing of a TAO motor is..... (b)
a.170-T b.SP57 c.ServoRR3 d. Mineral oil
50. Multi meter is used to measure (d)
a. Voltage only
b. Current only
c. Resistance only
d. All of the *
e. above
51. WAG-7locoisusing type of bogies (b)
a. flexi coil co-co
b. fabricated co-co
c. tri mounted co-co
d. any of the above
52. Loco TFP hasNos. of taps for voltage control (b)
a.16 b.32 c.12 d. depending upon the type of loco
53. What is the ratio of percentage loads haring between center pivot and side (a)
bearers in WAG-5loco
a.60:40 b.50:50 c.40:60 d.70:30
54. What are the time delays of Q118, Q44 and QTD Relays? (c)
a. 5sec,5sec,1sec
b. 5sec,5sec,5sec
c. 5sec,0.6sec,5sec
d. 1sec,0.6sec,5sec

55. Sand is used in locomotives to avoid..... (b)
- a. Wheel skidding
 - b. Wheel slipping
 - c. Brake failure
 - d. All the above

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

OBJECTIVE TYPE QUESTIONS

1. Pick up voltage of Q20 in WAG5 locos:
 - a) 750V
 - b) 800V
 - c) 865V
 - d) 850V
2. 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
3. The setting value of Q44 is
 - a) 1sec
 - b) 2sec
 - c) 5sec
 - d) 0.6sec
4. The setting value of Q118 is
 - a) 2.5sec
 - b) 5.0sec
 - c) 0.6sec
 - d) 1.5sec
5. In twin Beam headlight the rating of bulb is _____
 - a) 24V, 70/75W
 - b) 24V, 90/100W
 - c) 110V, 70/75W
 - d) 110V, 90/100W
6. The input/output voltage ratings of the DC-DC converter are:
 - a) 110V/110V
 - b) 110V/50V
 - c) 110V/24V
 - d) 110V/20V

7. 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

8. The rating of a cab heater is.

- a) 500Ω, 500W
- (b) 400Ω, 500W
- (c) 100Ω, 500W
- (d) 50Ω, 500W

9. How many CPs are required for Airbrake loco:

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

10. Rating of MEMU transformer is

- (a) 1200KVA
- (b) 1000KVA
- (c) 800KVA
- (d) 1100KVA

11. Voltage rating of MEMU Traction Motor is

- (a) 500V
- (b) 580V
- (c) 535V
- (d) 550V

12. New wheel diameter of MEMU Motor Coach/Trailer coach

- (a) 900mm
- (b) 950mm
- (c) 850mm
- (d) 952mm

13. Total auxiliary motors in MEMU motor coach

- (a) 5
- (b) 4
- (c) 3
- (d) 2

14. Total No. of traction motors in a MEMU/EMU Motor Coach

- (a) 2
- (b) 3
- (c) 4
- (d) 5

15. The Safety device provided in MEMU for detecting assign and the protection of Transformer is:

- (a) OLP
- (b) TTR
- (c) BUD
- (d) PRV

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

- (a) PRV
- (b) BUD
- (c) OLP
- (d) TTR

16. Maximum acceleration no of MEMU, on level tangent track with crushload is:

- (a) 1.2 Kmph/Sec (b) 1.6 Kmph/Sec (c) 1.8 Kmph/sec (d) 1.4 Kmph/Sec

17. The Ampere hour capacity of MEMU battery is

- (a) 100AH (b) 75 AH (c) 90AH (d) 80AH

18. What is class of Insulation specified for 180degree temperature:

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

19. The object of sanders is to

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

20. Continuous tractive effort at wheel rim of WAG7 locois

- (a) 34.3 tones (b) 30 tones (c) 20.5 tones (d) 19.0 Tones:

21. Continuous current of a TAO659 traction motor.

- (a) 750A (b) 900 A (c) 667 A (d) None of these

22. Breaking excitation transformer purpose is to.

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

23. BP1 DJ is pressed

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

24. HQOP & HQOA are

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

25. 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.

26. The fuse rating of CCPT is

- a. 6 AMPS (B) 10 Amps (c) 16 Amps (d) 35Amps

27. 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)

28. 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
29. Battery negative is connected to loco body through
(a) HQOP (b) HQOA (c) HOBA (d) HQCVAR
30. MVMT1/MVMT2 are meant for cooling of
a. Armature of TM (b) Field coils of TM
(c) Stator of TM (d) All of these
31. 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.
32. The speed control method used in AC locomotive/MEMU
a. Voltage control (b) Current control
(b) Rheostatic control (d) Regenerative control
33. The type of Electric braking system used in AC locomotive is
a. Regenerative (b) Rheostatic
(c) Both
34. During rheostat braking traction motor works as a
a) Generator b) Converter c) Motor d) Inverter
35. The relay QOP/QOA is the relays of sensing
a) Voltage b) Current c) Resistance.
36. IN MEMU, ABB Governor is for
a) Panto reservoir pipe
b) MR reservoir
c) Aux reservoir
d) Bp reservoir
e) None of the above
37. IN EMU the setting of ABG Governor cut in/cut out is-
a) 6.0/7.0 kg/cm²
b) 8.0/9.0 kg/cm²
c) 5.6/4.5 kg/cm²
d) 4.0/5.0 kg/cm²
e) None of the above

38. In EMU the setting of MCP Governor cut in /cut out is-
- a) 5.0/6.0kg/cm²
 - b) 7.0/8.0kg/cm²
 - c) 4.5/5.5kg/cm²
 - d) 6.0/7.0kg/cm²
 - e) None of the above
39. IN EMU one of the following is a part of brake controller
- a) Triple valve
 - b) Equalizing discharge valve
 - c) Safety valve
 - d) Application magnet valve
 - e) None of the above
40. IN EMU the setting of equipment governor cut in/cut out is
- a) 4.5/5.5kg/cm²
 - b) 2.2/3.8kg/cm²
 - c) 4.2/3.2kg/cm²
 - d) 4.4/5.2kg/cm²
 - e) None of the above
41. IN MEMU the setting of control governor cut in/cut out is
- a) 5.5/4.3kg/cm²
 - b) 4.2/3.2kg/cm²
 - c) 3.2/4.8kg/cm²
 - d) 5.5/6.5kg/cm²
 - e) None of the above
42. IN EMU the BC Pressure in MC is -
- a) 2.0kg/cm²
 - b) 3.5kg/cm²
 - c) 1.6kg/cm²
 - d) 4.0kg/cm²
 - e) None of the above
43. IN WAG-7 BP pressure not building up
- a) A9defective
 - b) C3Wdefective
 - c) SA9defective
 - d) R6
 - e) None of the above

44. 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

45. Type of three phase locomotive available on Indian Railways

- a) WAP1/WAP5/WAP4
- b) WAG7/WAG9/WAP7
- c) WAP5/WAP7/WAG9

46. Advantage of three phase locos.

- a) Regenerative basis
 - b) UPF
 - c) Both a & b
 - d) None of the above.
47. 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

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

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

49. Type of pantograph used in 3 phase locomotive

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

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

Match the following

Governor settings	Cut in	Cut out
MCP	6.0 kg / cm ²	7.0 kg / cm ²
MCPA	5.3 kg / cm ²	6.3 kg / cm ²
Control	3.5 kg / cm ²	4.2 kg / cm ²
Equipment	3.5 kg / cm ²	4.2 kg / cm ²
ABB	4.5 kg / cm ²	5.3 kg / cm ²

ABBREVIATIONS

Sl. No.	Abbreviations	Expansion	Location
1.	A	Traction Ammeter	Bottom of Gauge panel
2.	AB	Alarm bell	Below of signal bell Guard side
3.	ABB	Air blast circuit breaker	In Roof
4.	ABR	Air blast circuit relay	5 th relay in relay panel (1 st row)
5.	AIC	Auto isolating cock	Back side of BP CDC in U/F Dr side
6.	AF1, AF2	Auxiliary fuses	Back side of tap changer or TFR
7.	AMV	Application magnet valve	Inside of the EP unit
8.	AOVR	Auxiliary over voltage relay	Below OL2 in switch group I
9.	ARR	ABB reset relay	6 th relay in relay panel (2 nd row)
10.	AS	Ammeter shunt	Back side of M1(SG1)andM3 (SG2)
11.	ASS	Ammeter selector switch	Rt side of BL box in driver's desk
12.	ASL1&2	Additional smoothening reactor 1&2	In HT room, Opposit to Aux.comp(1) & BIR bud (2)
13.	ASR	Auxiliary supply rectifier	(7 th bridge) Rt side corner in Rect.Box
14.	BA	Battery	Guard side U/F-Rt of KF1
15.	(BA) V	Battery volt meter	CAB gauge panel
16.	(BA) A	Battery ammeter	Rt side of switch panel or below of relay panel.
17.	BA RELAY	Brake application relay	Above Dr lookout glass or in MLT room
18.	BC	Brake cylinders(1-8)	1&2 driver side and 3&4 guard side U/F 5&6 driver side and 7&8 guard side U/F
19.	BCFR	Battery charger failure relay	Inside of the BA charger
20.	BCH	Brake controller handle	Top of the Brake controller
21.	BCS	Battery charging socket	U/F Driver side near HLS
22.	BIC	Bogie isolating cock	Rt side of wheel No 2 Lt side of W.No5
23.	BIR	Bucholz indication relay	4 th relay in relay panel (1 st row)
24.	BIS	Battery isolating switch	Below switch panel or Lt side of GS3
25.	BIV	Brake isolating valve	Rt side bottom of Br.Controller

26.	BP	Brake pipe	Under frame Dr side, green colour
27.	BRH	Brake release handle	Both side of under frame
28.	BUD	Bucholz device	Under conservator tank-Rt side
29.	CBAR	Current balancing auxiliary relay	3rd relay in relay panel (1st row)
30.	CBR	Current balancing relay	In the Rectifier cubicle
31.	CC1 & CC2	Compressor contactor	CC1 below lights contactor and CC2 is below the fans contactor
32.	CG1 – CG4	CG1 for MCP, and CG2 for Aux, compressor	1,3,4 in HT room and 2 in under Dr desk
33.	CCOS	Control changeover switch	Switch panel, below the MCS2
34.	CIC	Compressor isolating cock	Lt side of wheel No8
35.	CLAR	Current limiting auxiliary relay	Middle portion of MLT panel
36.	CLR	Current limiting relay	CLR1 below OL1, CLR2 below OL3
37.	CR	Compressor relay	10 th relay in relay panel 2 nd row)
38.	CT	Current transformer	HT room, Top of the 25KV bush
39.	DL	Dropping reactor	In choke box, backside of SGI
40.	DMH	Dead man's handle	Top of the master controller
41.	DMH COC	Dead man's handle COC	U/F-Dr side, backside of wheel No1
42.	EAS	Earthing switch	Back side of the ABB in roof
43.	EFRA II	Earth fault relay for auxiliary II circuit	Above OLP/EFRP
44.	EFRP	Earth fault relay for power circuit	Below the relay panel-Rt side to OLP
45.	EPIC	Electro-pneumatic isolating cock	Gd side U/frame-behind MR-CDC
46.	FC 1 & 2	Fan contactors 1 & 2	Above the CC2 contactor
47.	GS1 – GS4	Governor bye pass switches	MLT room-below HEFRP
48.	HEFRA II	Fault Switch for EFRA II	Dr back side-below relay panel
49.	HEFRP	Fault Switch for EFRP	MLT room-above Governor bye pass switches
50.	HLS	Hand lamp socket (5 Nos)	Dr desk, MLT & HT rooms, Dr & Gd side U/F (total 5)
51.	HLVS	Headlight voltage stabilizer	Under Dr desk-Rt side of Cont, Governor
52.	HMV	Holding magnet valve	In side of the EP unit
53.	HOBA	Earthing switch of battery	Below relay panel Rt side of HEFRA2-
54.	K1 & K2	Reversors	K1 in Rt side Switch Group I & K2 in Rt side Switch Group II
55.	KF1 & KF2	Radiator fan 1 & 2	Lt side of battery box (U/F-Gd side)
56.	LA	Lighting arrestor	On the roof Lt side of ABB
57.	LS 1&3	Limiting switches 1&3	In MCOS box
58.	LTR	Low tension proving relay	4 th relay in relay panel 2 nd row
59.	M1 – M4	Motor contactors	M1 & M2 in SG1 & M3 & M4 in SG2

60.	MCB	Miniature circuit breaker	(Dr desk & fuse panel)
61.	MCP	Main compressor	Rt side of Aux Reservoir-U/F-Dr side
62.	MCS1 & 2	Motor contactor switch	Switch panel-1 above TSS&2 above CCOS
63.	MCOS1-4	Motor cutout switches 1-4 negative side	In a box above ASL2(MCOS 1,2,4&3)
64.	MPT	Master controller	CAB-Rt side of Brake controller
65.	MR	Main reservoir	Rt side of wheel No 6 (back of axle 4)
66.	MR /R1 COC	Main reservoir COC	In HT room, before NRV
67.	MSTWL	Motor switch trip white light.	Dr desk. 5 th Indication lamp
68.	NLVS	Normal light voltage stabilizer	Back side of MLT panel
69.	NR1 & NR2	Notching relay 1 & 2	Lt side of M2 in SG 1
70.	NVR	No voltage relay	7 th relay in relay panel 2 nd row
71.	NLC	Normal lights contactor	Lt side of fan contactor
72.	OL1 – 4	Overload relay for traction motors 1 – 4	OL1&2 in SG1 & OL3&4 in SG 2
73.	OL5	Overload relay for rectifier	Lt side of Tap changer 2 nd portion-above OL6
74.	OL6	Overload relay for tap changer	Lt side of Tap changer 2 nd portion-below OL5
75.	OLP	Overload relay for transformer primary	Below the relay panel-Lt side to EFRP
76.	OP	Oil pump	U/F-behind the KF2
77.	OVR	Over voltage relay	Below OL4 inSG2
78.	PB	Parking brake	Bogie No 1&2 (switch in BL box) (bye pass switch in Dr desk) (PB provided in some MC only)
79.	PFD	Permanent field diverter	U/F-Lt side of SG2
80.	RF	Rectifier fan motor	Lt side corner in Rectifier cubicle
81.	RFAR	Rectifier fan auxiliary relay	1 st relay in relay panel 1 st row
82.	RFR	Rectifier fan airflow relay	Fixed in RF motor in Rectifier cubicle
83.	ROVR	Resistor for OVR	Below OL2 inSG1 (Rt side of AOVR)
84.	RTL	Resistor for TL	U/F-backside of the battery box
85.	S	Speedometer	Dr desk.
86.	SB	Signal bell	Dr desk and Guard side corner
87.	SBC	Static battery charger	MLT room
88.	SL	Smoothing reactor	U/F-In choke box
89.	SR	Starting relay	3 rd relay in relay panel 2 nd row
90.	SV1,2&3	Safety valves 1,2&3	SV1 is Lt side of CIC, SV2 is above Aux,compressor and SV3 fixed in intercooler
91.	T1 – T6	Tapping switches	U/F Dr side in Tap changer
92.	T7 – T9	Transfer switches	U/F Dr side in Tap changer
93.	TL	Tapping reactor	U/F-In choke box
94.	TSS	Test sequence switch	Switch panel-below MCS1
95.	TT	Transformer thermostat	In side of TFR tank

96.	TTR	Transformer thermostat relay	2 nd relay in relay panel 1 st row
97.	VCB	Vacuum circuit breaker	On the roof (ABB also)
98.	War-switch	Warning switch	16 th switch in the BL box
99.	W-switch	Winding grouping switch	Lt side of Tap changer 1 st portion
100	WGR	Winding grouping relay	Rt side of T5 (corner of Tap changer 2 nd portion)

Fill in the Blanks:-

1. Type of Traction motor used in 3 phase EMU Squirrel cage induction motors
2. Rating of EP circuit MCB is 10A in EMU/MEMU
3. LS4 (ARTL) indicates the failure of ASR in EMU/MEMU
4. Supply voltage frequency of AUX-II circuit in EMU/MEMU is 141V A.C.....
5. Maximum speed of EMU rake when bellow of any coach isolated 60Kmph
6. Setting of Baby Compressor Governor in EMU/MEMU ... (5.3 – 6.4)kg/cm².....
7. BP pressure of EMU/MEMU is ... 5kg/cm².....
8. Rating of Main Compressor fuse in EMU/MEMU ... 125A.....
9. PT raising time of EMU/MEMU is ... (6 – 10)sec.....
10. Voltage of Auxiliary-I circuit in EMU is ... 266VAC.....
11. Per cell voltage of Lead Acid battery is approximately ___ 2.2V ___ volts
12. Shortest OHE neutral section ___ PTFE ___ type neutral section
13. If loco trips within 30 secs. with LSCHBA in glowing condition in Static Converter loco, check ___ CCINV FUSE
14. The continuous current TM is ___ 750A ___ in WAG-5 class of locomotive
15. ___ BA voltage 90V ___ is to be checked in Microprocessor loco in case if ICDJ
16. Contactor _____ is provided in Static Converter loco of MVHF
17. If MP is put on '0' but GR stuck up on 5th notch ___ Q46 ___ will pick up
18. Maximum brake cylinder pressure during synchronizing braking is ___ 2.5kg/cm² ___
19. During dynamic braking ___ C145 ___ should be in closed condition
20. BPSW is provided for ___ Quick BP charging ___
21. QD-2 is connected with ___ 4 ___ & ___ 5 ___ in WAG-7 class of locomotive

22. If C 105 does not close, loco will trip in _____ (Opn. 'O', Opn. 'I', Opn. 'I2', none of the above)
23. QOA is not provided in _____ (Microprocessor fitted loco , WAG 7 class, WAP 7 class, None of the above)
24. BP pressure at Brake van should be _____ (5 Kg/sq. cm., 4.8 Kg/sq. cm, 4.9 Kg/ sq. cm, none of the above)
25. _____ valve is provided to charge BP in loco (C 2 Relay valve , Addl. C 2 Relay valve , A 9 valve, None of the above)
26. If GR stuck up in between notches , loco trips via _____ (Q44, Q46, Q45, None of the above)
27. During brake power testing of loco, progress notch up to _____ (400 Amps., 500 Amps., 600 Amps., None of the above)
28. _____ is issued to pass a STOP signal at 'ON' in double line absolute block system (T/369[3B] , T/806 , T/512 , None of the above)
29. Suspension bearing is related to _____ (Traction motor , Axle box, Bogie frame , None of the above)
30. Starting current for WAG 5 class of locomotive is _____ (1200 Amps. , 1100Amps., 1000 Amps., None of the above)
31. Feed pipe feeds _____ (Auxiliary reservoir , DV , Brake cylinder , None of the above)
32. QD1 relay is connected between... TM1 & TM2...
33. Relay Q30 stands for... No volt or Low volt relay
34. Continuous current for WAG₇ loco fitted with Hitachi motor is ..900A.
35. Rating of CCA fuse is...6Amps.....
36. Relay QLM is provided to protect...Main transformers over current.....
37. During dynamic braking traction motor is converted into Generator
38. DC series traction motor has High starting torque at Low speed
39. SWC will pick up when during RB, if loco brake cylinder pressure becomes 1kg/cm² Kg. /sq. cm.
40. If QOP2 becomes permanent HQOP2 needs to be isolated
41. In Operation B LSDJ comes again within 15 sec. after extinguishing of LSCHBA
42. Pinion and bull gear ratio of a WAG7 loco is---16:65-----
43. The axle load of WAG9 is---20.5±2% tones-----
44. For WAG-7 Hitachi loco, gear ratio---16:65-----gives best performance for graded section.
45. Full form of MVRH is Blower for cooling transformer oil
46. Primary Helical Spring is used in WAP4 type of loco.

47. RPS is used to parallel field of Traction Motor.
48. Higher gear ratio is used for Higher starting torque'
49. Type of Pantograph used for WAG-7 locos is AM-12
50. RSI block is Bridge Wave Rectifier.
51. Q-20 Relay is a TM Over voltage relay
52. Bo-Bo bogies have Two no. of axles in each bogie.
53. In DBR operation, traction motor works as Generator
54. AM12, AM92 are the type of Pantographs
55. Every loco should be provided with 04 nos. of Fire Extinguishers
56. Leak hole test is conducted for Proportional brake system.
57. With two CPs in working loco alone, the BP pressure should reach within 150 secs.
58. ZLS switch is provided to switch off signaling lamp of rear loco in MU.
59. Minimum air pressure required to raise the panto is 6.5 kg/cm²
60. The purpose of SListo. AC ----- (Remove the pulses in DC output from the rectifier)
61. The resistance value of RPGR is One lakh ohms.....
62. The resistance value of RGR is..... 1.6mΩ.....
63. The HP of MVSL is.....
64. LECE is provided in the loco to indicate... Continuity of Fuse.....
65. LSCHBA is provided in the loco to indicate... Battery Charger working.....
66. Additional CCBA provided to protect... Batteries.....
67. DC-DC converter provided to use head lamps of loco in section
68. Over charging of batter results... Gassing.....
69. Under charging of batter results.....
70. Tandel tabeing measured to monitor.....
71. DGA being measured for insulating oil.....
72. Transformer breather used for... To give dry air and absorb the moisture in the oil.....
73. Q20 will pick up at... 865V..... Drop out at... 740V for 6P combination locos.
74. Current transformers are used to measure. High Current in AC systems.
75. The protection against safety for equipment as well as human in the locomotive.
HOM
76. The number of auxiliary motors starts along with ANNO---5---
77. Type of traction motor bearing---... Roller Bearing.....
78. Transformer oil used to... Cool the transformer winding
79. Contactor used for ACMVRF... C108.....
80. Type of cooling used in EMU traction motor. Air Forced motor.
81. Continuous rating of EMU TM... 535VDC & 340A.....
82. In WAG7 loco the raising/lowering time of pantograph is... 6 to 10 sec.....
83. Maintenance of transformer & Tap changer is being done by... E5... section in electric loco sheds.
84. Under frame inspection is carried out by... M6..... sectional electrical loco sheds.
85. In STB1 signal "AMSB_0102LVCBon" "L" stands for Line voltage CKT
86. Horse power of a WAG-9 loco is 6000HP
87. Type of Traction motors used in WAG-9 locos 3Φ Slip ring Induction motor
88. Maximum tractive effort of a WAG-9 loco is 47 tones
89. Maximum speed of a WAG-9 loco is 100 kmph
90. Power converter is isolated by switch No. 154
91. Two locomotives of ELS/LGD are provided with TCN/VCU. The acronym TCN stands for

Train Communication Network.

92. Limits of OHE voltage during working of WAG9 locomotive is **17.5** kV to **30**kV.
93. The letters V-O-F on cab buzzer indicates **Vigilance, Over speed, and Fire**_____.
94. Self hold mode means **CEL will remain active for 10 mins**_____.
95. The fault message F0101p1 results in **Main power off**_____.
96. In **Simulation**_____ mode, working of VCD can be tested on stand still position in $3\emptyset$ locomotives.
- Vigilance is provided for checking the alertness of crew when _____
 - The train is stopped
 - The train is motion**
 - Both case
 - To isolate Vigilance LP will operate switch _____
 - 237.1**
 - 160
 - 154
 - Traction bogie-1 can be isolated by tripping MCB _____
 - 127.1/1**
 - 53.1/1
 - 127.22/1
 - If throttle fails then LP can work the train by putting switch _____ on _____
 - 152,0
 - 152,1**
 - 152, OFF
 - During cooling mode operation, if VCB opens, then LP has checked the relay _____
 - OCR-78**
 - OCR-89
 - MVR-86
 134. In non-driving cab, position A9 is _____ position of E-70 locomotive.
 - Neutral**
 - Release
 - Run
 - During towed dead operation, position of cock 47 should be _____ position.
 - Open**
 - Close
 - None of these
 136. For recovery of "Penalty Service Brake", auto brake handles to be kept in _____ position
 - Release
 - Full-service**
 - Emergency
 - If QLM drops Loco Pilot will experience _____
 - OP-A
 - TWAC
 - ICDJ**
 - If RS pressure is not building up _____ LP to be ensured in open condition
 - RAL Cock**
 - L/T Cock
 - EP Cock
 - If Pilot lamps not glowing, then _____ fuse to be checked.
 - CCLS**
 - CCBA
 - Both
 - In case of fuse melted repeatedly, Loco Pilot will put _____
 - HOBA OFF**
 - HQOA OFF
 - HQOP OFF
 - Q-49
 - Q-50**
 - Q-51
 - Rating of CCINV fuse is _____ Amps
 - 10
 - 6**
 - 16
 - In which fault LSSIT lamp will glow?
 - Internal fault
 - External fault
 - Both**
 - If QCON is not energizing with SIV working, then which auxiliary will not work?
 - CHBA
 - MCP**
 - MCPA
 - Which relay is available in MPCS loco?
 - QOP-1**
 - Q-44
 - Q-45
 - RGAF will not functioning when fuse melt _____
 - CCLSA
 - CCLC
 - CCLS**

Armature over current protection relay during RB is _____

 - QF**
 - QE
 - SWC
 - RB will cut off through loco brake cylinder pressure by _____

- a. QF **b. SWC** c. RGEB
19. Relay Q-119 is provided for _____
a. To de-energizes VEUL's
b. **To energizes VEUL's**
c. Only to start all MCP
20. The DC-DC converter is fed from _____
a. TFWA **b.110VBA** c. TFP
21. The blower motor to cool the TM's is _____
a. MVRH **b. MVMT** c. MVS1
22. Driving in Cab-1 & ZPT is on position-2 _____ valve is energized
a. VEPT-1 **b.VEPT-2** c. Both
23. In case blower are not started , LP will check fuse _____
a.CCBA b.CCLSA **c.CCA**
24. If C145 remain closed on Traction side, then **Q50** relay will not energize.

******* THE END *******
