

BCT DIV. TRS unit

कषण चल टॉक(क.च. टा) के लिए बक (योगा मक) /

QUESTION BANK (TENTATIVE) ON TRACTION ROLLING STOCK (TRS)

व त्तिन कार के / OBJECTIVE TYPE QUESTIONS

: 1 सेटी वा व Safety relays

क). सभी DI टाइप

a). All DI type

ग). सभी DI तथा DU टाइप

c). All DU & DI type

ख). सभी DU टाइप

b). All DU type

घ). कुछ DU टाइप तथा कुछ DI टाइप

d). Some are DU and some are DI type

: 2. DI टाइप सेटी वा व ह / DI Safety relays are

क).

a). QOP, QOA

ग).

c). QOP, QPDJ

ख).

b). QRSI, QLA, QLM

घ).

d). Q44, Q118

: 3. DU टाइप सेटी वा व ह / DU type safety relays are

क).

a). QOP, QOA

ग).

c). Q44

ख).

b). QLM, QRSI

घ).

d). Q118

: 4. RSILM का CT रेशो / CT ratio of RSILM:

क).

1000:5

a).

ग). 4000:5

c).

ख).

b). 2000: 5

घ).

1000: 15

: 5. TFILM का CT रेशो / CT ratio of TFILM:

क).

a). 50: 5

ग).

c). 250: 5

ख).

b). 100: 5

घ).

d). 200: 5

: 6. WAG5 लोको म Q20 का िपक-अप वो टेज/ Pick up voltage of Q20 in WAG5 locos:

क).

a). 750 V

ग).

c). 865 V

ख).

b). 900 V

घ).

d). 650

: 7. WAG5 लोको म जब RB स वस म हो और पावर स कट म अथ फॉ ट आ जाए तब कौन सा रलेकाय करेगा? Qstn.7.

While RB is in service which relay will act if earth fault occurs in the Power Circuit of WAG5 loco:

क).

a). QOP 1

ग).

c). QOA

ख).

b). QOP 2

घ).

d). QLM

: 8. WAG5 लोको म RU क रिज ट स वैयूहै/ The resistance value of RU in WAG5 locos is

- | | | | |
|-----------|--|-----------|--|
| क). | | ख). | |
| a). 88 k | | b). 110 k | |
| ग). 120 k | | घ). 220 k | |
| c). | | d). | |

: 9. WAG5 लोको अथवा 6P लोको RU क रिज ट स वैयूहै/ The resistance value of RU in WAG5 locos or 6P locos :-			
क).		ख).	
a). 2.4 k		b). 13.2 k	
ग). 24 k		घ). 10 k	
c).		d).	
: 10. Q44 क सेटग वैयूहै/ The setting value of Q44 is			
क/ a). : 1 सैकंड	ख/ b). : 2 सैकंड	ग/ c). : 5 सैकंड	घ/ d). 0.6 सैकंड
: 11. Q118 क सैटग वैयूहै/ The setting value of Q118 is			
क/ a). : 2.5 सैकंड	ख/ b). : 5 सैकंड	ग/ c). :	0.6 सैकंड
			घ/ d). 1.5 सैकंड

1. The resistance value of RU in WAG5 locos or 6P locos a) 2.4 k b) 13.2 k c) 24 k d) 10 k

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 sec c) 0.6 sec d) 1.5 sec

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

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

13. The input/out put 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 Head light, 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 headlight system:

- a) Headlight glows while passing beam headlight system.
b) Headlight focusing is good.
c) Even one bulb fuses also, it will not effect the running of loco to

a) 700 HP b) 600 HP c) 770 HP d) 800 HP

25. 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

26. Size of each cable connected to MVMT1/MVMT2/MVRH in AC

Locomotive is

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

27. Size of the cable connected to MCP/MPH

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

28. Size of the cable used in control circuits is

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

29. Size of the cable connected to Arno

a) 100 Sq.mm b) 150 Sq.mm c) 120 Sq.mm d) 150 Sq.mm

30. Breaking excitation transformer ATFEX purpose is

a) Excitation of armature b) Excitation of field c) Excitation of both

d) Excitation of TFP

31. BP1 DJ is pressed

a) To start the loco

b) to stop the loco c) to close

DJ d) to trip DJ

32. HQOP & HQOA are

a) Earth fault relay by pass switches b) Earth fault relay isolation switches

c) Earth fault relays d) All the above.

33. 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.

34. EM contactor main contact pressure is

a) 650 to 800 gms b) 600 to 800 gms c) 600 to 750 gms d) 600 to 800 gms

35. Electrolyte used in lead acid battery is

a) Conc. Sulphuric acid b) dil. Sulphuric acid c) Nitric acid d)

none 36. The fuse rating of CCPT is

a) 6 amps b) 10 amps c) 16 amps d) 35 amps

37. CHBA function is normally

a) To supply the DC charging current to batteries

b) To supply the DC load current to various control circuits

c) To supply the current to Auxiliary motors

d) Both (a) & (b)

38. The purpose of RSI block is

a) To convert AC to DC

b) To convert DC to AC

c) To generate AC

d) To generate DC

39. Battery negative is connected to loco body through

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

40. MVMT1/MVMT2 are meant for cooling of

a) Armature of TM b) Field coils of TM c) Stator of TM d) All the

above 41. Shunting contactors are provided in the loco for purpose of

a) Increasing the speed b) to decrease the speed c) to stabilize the speed

d) To stop the train.

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

a) Voltage control b) Current control c) Rheostatic control

e) Regenerative control

43. The type of Electric braking system used in AC loco with tap

changer is a) Regenerative b) Rheostatic c) Both d) None.

44. Current is collected from OHE to AC loco through

- a) Transformer
- b) Circuit breaker
- c) Pantograph
- d) Servomotor.

45. Taps on auto winding of TRP are provided for

- a) Speed control
- b) protection from surges
- c) shorting of winding
- e) Avoiding overloading of TFP.

46. QOP relay is used to detect

- a) Earth fault in auxiliary circuit
- b) Over current
- c) Earth fault in power Circuit
- d) Surges

47. For converting AC to DC following equipment is used in locos

- a) Transformer
- b) Smoothing reactor
- c) Silicon Rectifier
- d) DJ

48. Which one of the following is not a safety item

- a) ACP Unit
- b) Hand brake
- c) Head light
- d) Corridor

49. The maximum rpm of a Hitachi Traction Motor is

- a) 895 rpm
- b) 1000 rpm
- c) 1100 rpm
- d) 1250

rpm 50. MVRH is a

- a) DC motor
- b) 3 AC motor
- c) Universal motor
- d) 1 AC

motor. 51. 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

52. KVA rating of TFP used in WAG7 & WAP4 locos is

- a) 3460 KVA
- b) 3900 KVA
- c) 5400 KVA
- d) 6000

KVA 53. In Traction Transformer

- a) A33-A0 is Auto Transformer winding
- b) A34-A0 is Primary winding
- c) a0-a1 is Auxiliary winding
- d) All are correct

71. In WAP4 loco, the no. of brake cylinders are

- a) 8
- b) 10
- c) 12
- d) 16

72. Bolster is used in the following class of locos

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

73. 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.

74. DP Test is done to detect

- a) Acetylene content in oil
- b) Methane level
- c) Inside void in axle
- d) Surface crack

75. 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

76. QLM setting of WAG7 loco is

- a) 9 amps b) 8 amps c) 7 amps d) 10 amps

77. Noise / vibration level of bearing is

- measured in a) DB b) dB c) GB d) BD

78. EFDJ coil of DJ in WAG7 loco is

- a) holding coil b) closing coil c) None d) (a) &

(b) 79. 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

80. 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

81. The requisition No. for N.S item is

- a) S 1313 b) S1302 c) S1315 d) S 1305

82. Opening of the AAL Make VCB is done through

- a) air pressure b) charged spring c) both (a) & (b) none of the

above 83. What type of bearing is used in WAG7 loco axle box?

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

84. In a failed WAP4 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

85. What is the voltage of OHE feeding power to WAG7 loco

- a) 25 KV AC b) 1500 V DC c) 11 KV AC d) 440 V AC

86. MVRH is provided to cool the

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

87. What is the time interval between IA and IB schedule of WAG5 loco is _____ days
a) 45 b) 60 c) 90 d) 30
88. Loco brake applieskg pressure with A9.
a) 2.0 b) 3.5 c) 1.5 d) 7.0
89. "BLACK LASH" term is related to
a) TFP b) Battery c) CBC d) Gears
90. There are..... nos. of main poles (MP) in a Hitachi TM.
a) 6 b) 4 c) 2. d) 12
91. The lubricant used in suspension bearing of a TAO motor is.....
a) 170-T b) SP57 c) Servo RR3 d) Mineral oil
92. Multi meter is used to measure.....
a) Voltage only b) current only c) resistance only d) all of the above
93. WAG5 loco is using Type of bogies
a) Flexi coil co-co
b) Fabricated co-co
c) Tri mounted co-co
d) Any of the above
94. Loco TFP has No.s of taps for voltage control
a) 16 b) 32 c) 12 d) depending upon the type of loco
95. What is the ratio of percentage load sharing between center pivot and side bearers in WAG5 loco
a) 60:40 b) 50:50 c) 40:60 d) 70: 30
96. 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
97. Sand is used in locomotives to avoid
a) Wheel skidding b) wheel slipping c) brake failure d) all the above
98. Leakage Test is conducted to find out leakage in a) CP b) MR c) BP d) Whole loco
99. When the DJ of the locomotives opens following pilot lamps will glow
a) LSDJ, LSGR, LSB & LSCHBA
b) LSDJ, LSGR, LSB & LSP
c) LSDJ, LSGR, LSB & LSOL
d) LSDJ & LSGR only

100. When QVMT2 is defective it may give following problem.

- a) DJ will not close
- b) DJ will close but immediately open
- c) DJ will close but open after 10.6 secs
- d) DJ will close but open after 15.6 secs.

101. LSRSI will glow when

- a) Earth fault in rectifier takes place
- b) Tell tale fuse of RSI blows
- c) When QRSI relay drops
- d) None of the above

102. If LSB is glowing, the loco have following problem.

- a) Brake of the loco is not working
- b) Brake pipe pressure has dropped to 3.8 Kg/cm²
- c) CTF and reverser are not in correct position
- d) The dynamic braking in loco out of order.

103. When pantograph of a loco comes down suddenly loco may have following trouble

- a) CCBA fuse blown b) CCPT fuse blown c) CCDJ & CCBA fuse blown d) None of the above

104. In WAM4 MCPA pressure not building up

- a) VESA air leaking b) VEAD air leaking c) IP (E) air leaking
- d) DJ oil separator drain cock closed e) none

105. In MU loco driver experienced rear loco brakes are not applying due to the following trouble

- a) MU2B leading loco in leading
- b) MU2B tailing loco in leading
- c) A1 differential cock closed
- d) SA 9 problem
- e) None

106. Vacuum dropping suddenly on run, driver will check for below

- a) A9 defective b) Train parted c) VA1B defective d) All the above

107. Duplex check valve defective in WAP4 loco will resulted to

- a) Horn/wiper not working
- b) Horn/sanders not working
- c) Horn/FP not working d) All the above

108. In WAP4 BP pressure not building up may be due to

- a) A9 defective b) C3W defective c) SA9 defective d) none of the above 109. In WAP4 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
110. Gear ratio of WAG7 loco is
a) 15: 62 b) 21: 58 c) 18: 64 d) 16: 65
111. Max.starting torque offered by WAG7 loco is
a) 44 tonnes b) 42 tonnes c) 45 tonnes d) 55 tonnes
112. Rating of MEMU transformer is
a) 1200 KVA b) 1000 KVA c) 800 KVA d) 1100 KVA
113. Voltage rating of MEMU Traction Motor is
a) 500 V b) 580 V c) 535 V d) 550 V
114. New wheel diameter of MEMU Motor coach/Trailer coach
a) 900mm b) 950 mm c) 850 mm d) 952 mm
115. Total auxiliary motors in MEMU motor coach
a) 5 b) 4 c) 3 d) 2
116. Total No. of traction motors in a MEMU motor coach
a)2 b)3 c) 4 d) 5
117. The safety device provided in MEMU for detecting gassing and protection of transformer is
a) OLP b) TTR c) BUD d) PRV
118. The safety device fitted to the MEMU Transformer for its protection against explosion.
a) PRV b) BUD c) OLP d) TTR
119. 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
120. The Ampere hour capacity of MEMU battery is
a) 100 AH b) 75 AH c) 90 AH d) 80 AH
121. The 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
122. In MEMU, ABB Governor is for
a) Panto reservoir pipe
b) MR reservoir

- c) Aux reservoir
 - d) BP reservoir
 - e) None of the above
123. In MEMU the setting of ABB Governor cut in/cut out is
- a) 5.0/6.0 kg/cm² b) 7.0/8.0 kg/cm² c) 4.5/5.5 kg/cm² d) 6.0/7.0 kg/cm²
 - e) None of the above
124. In MEMU the setting of MCP Governor cut in/cut out is
- a) 5.0/6.0 kg/cm² b) 7.0/8.0 kg/cm² c) 4.5/5.5 kg/cm² d) 6.0/7.0 kg/cm²
 - e) None of the above.
125. In MEMU one of the following is a part of brake controller
- a) Tripple valve b) Equalizing discharge valve c) Safety valve
 - d) Application magnet valve e) none of the above
126. 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
127. In MEMU the setting of equipment governor cut in/cut out is
- a) 4.5/5.5 kg/cm² b) 2.2/3.8 kg/cm² c) 4.2/3.3 kg/cm² d) 4.4/5.2 kg/cm²
 - e) None
128. In MEMU the setting of control governor cut in/cut out is
- a) 5.5/4.3 kg/cm² b) 3.3/4.2 kg/cm² c) 5.5/6.5 kg/cm² d) 3.2/4.8 kg/cm²
 - e) None of the above
129. In MEMU the BC pressure is
- a) 2 kg/cm² b) 3.5 kg/cm² c) 1.5 kg/cm² d) 4 kg/cm² e) none
130. In MEMU the MR pressure is
- a) 5 kg/cm² b) 7 kg/cm² c) 6 kg/cm² d) 8 kg/cm² e) none
131. In MEMU 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
132. 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

133. Instrument used to measure contact resistance

- a) Whetstone bridge b) Multi meter c) Micro ohmmeter d) Tongue meter

134. Action in lead acid cell

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

135. Purpose of inter pole in the traction motor.

- a) To avoid sparking on the commutator b) To avoid bad commutation
c) To divert field current d) None

136. During rheostat braking traction motor works as a

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

137. Dual speed of PV's obtained by

- a) Changing frequency b) Changing poles c) By inserting resistance

138. The relay QOP/QOA is the relay of sensing

- a) Voltage b) current c) resistance

139. Which amongst the following insulation class of material can with stand

Highest temperature

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

140. Purpose of sander valve is

- a) ETTFP b) ET 1 & 2 c) HOM d) None

141. Contactor used for running AC MCRF is.....

- a) C 105 b) C 106 c) C 107 d) C 108

142. Match the following:

Group – A

- a. Rocker arm
- b. Breather
- c. Mounting Pad
- d. Servomotor

Light

- e. Felt
- f. Plunger
- g. RTPR
- h. DC-DC Converter
- i. RF
- j. Tel-Tel Fuse

Group – B

- 1. Head light
- 2. Gear Case
- 3. Pantograph
- 4. Twin Beam Head
- 5. Relays
- 6. Traction Motor
- 7. Bogie
- 8. Transformer
- 9. DBR
- 10. RSI

143. Match the following:

Group “A”

- a. RGR
- b. Sanders
- c. Oil bath filter
- d. A9
- e. Reversor
- f. CTF
- g. SA9

Group “B”

- 1. GR
- 2. Wheel slipping
- 3. CP
- 4. Synchronizes brake application
- 5. Direction selection switch
- 6. Braking selection switch
- 7. Independent brake

144. Match the following:

Group "A"

- a. HOM
- b. LTBA
- c. CCBA
- d. C107
- e. C105
- f. Q 52
- g. PVEF

Group "B"

- 1. Loco grounding switch
- 2. Battery protection from surges
- 3. Battery over load protection
- 4. EMC for MVRH
- 5. EMC for MVMT 1
- 6. Notch by notch supervision relay
- 7. Loco brake isolation switch
(Pedal switch)

145. Match the following:

Group "A"

- a. MVRF
- b. ARNO
- c. Q 30
- d. Q 20
- e. ESMON

Group "B"

- 1. Over voltage relay
- 2. Energy cum speed monitoring
system
- 3. 1- to 3- converter
- 4. DBR
- 5. No volt/low volt relay

146. . Match the following:

Group "A"

- a. BP
- b. FP
- c. MR
- d. Air Drier
- e. Static Inverter

Group "B"

- 1. 10.5 kg/cm₂
- 2. 1- to 3- Static Converter
- 3. Moisture & oil grease particle
removal from air
- 4. 5 kg/cm₂
- 5. 6 kg/cm₂

147. The active material used for positive plate of lead acid battery is _____

148. Voltage operated relays are _____ type.
149. Current operated relays are _____ type.
150. Setting value of QRSI relay _____ in WAP4/WAG5 locos.
151. The purpose of SL is _____
152. The resistance value of RPGR is _____
153. The resistance value of RGR is _____
154. The HP of MVSL is _____
155. LECC is provided in the loco to indicate _____
156. LSCHBA is provided in the loco to indicate _____
157. Additional CCBA provided to protect _____
158. DC-DC converter provided to use head lamps of loco in _____ section.
159. Over charging of batteries results _____
160. Under charging of batteries results _____
161. DGA being measured for transformer insulating oil for _____ analysis.
162. Transformer breather used for _____
163. Traction Motor neutral axis set by _____ method.
164. Q 20 will pick up at _____ V DC. Drop out at _____ V DC
for 6P combination of WAP4 loco.
165. Current transformers are used to measure _____ in AC systems.
166. The protection against safety for equipment as well as human in the locomotive ____
167. The number of auxiliary motors starts along with arno _____
168. SJ is connected in series with _____
169. Tolerance of voltage in static converter _____
170. Type of TFP oil used is _____
171. FRPCPY represents _____
172. Effective value of RC-network across a3,a4 & a5,a6 in WAM4-6P loco _____

173. Type of traction motor bearing of TAO-659 _____
174. Class of insulation for auxiliary motors winding _____
175. Shock pulse meter to is used to _____
176. UA is connected to ARNO U&V phases to read auxiliary power
voltage corresponding to _____
177. Suspension bearing is used in WAP4 locos _____ True/False.
178. _____ method is used to estimate moisture content in transformer oil.
179. Water content allowable in the transformer oil is max _____ ppm in
service, new filtered oil _____ ppm.
180. Specific resistance at 90 ° C (OHM-cm) _____ (Min) for new transformer oil.
181. Die electric dissipation factor (Tan delta) at 90 ° C (IS-6267-71) _____
max for in service oil & for new filtered oil _____ max.
182. Acidity 0.5 mg KOH/gm (max) in service for new filtered oil _____ mg KOH/mg
183. Sediments and perceptible sludge allowable in TFP oil _____ by weight.
184. Transformer oil flash point minimum _____ C for serviceable oil and
_____ C for new filtered oil.
185. Interfacial tension at 27 ° C is _____ n/m for new filtered oil.
186. Oxidation inhibitor _____ % by mass (max) in transformer oil.
187. Permissible Ovality of TM TAO armature is below _____ mm
188. Arc horn gap for TAO 659 TM is _____
189. The purpose of star delta starter for induction motor is to _____ on line.
190. VCB pressure switch setting cut in _____ kg/cm² and cut out _____ kg/cm².
191. Conservator safety valve spring tension is _____ kg/cm² max.
192. PHGR oil strokes _____ per minute.
193. Tightness (torque) of GR segments is _____
194. Minimum thickness of GR segments is _____ mm

195. Main contact pressure of reverser/CTF is _____ kg.
196. Effective value of CAPTFP 3,4,5 & 6 us _____ mfd.
197. Rating of surge arresters in ETTFP 6P loco is _____ kv.
198. Contact pressure of EM contactor is _____ gms.
199. Air gap of EM contactor main contact is _____ mm.
200. Contact pressure of C118 contactor is _____ kg.
201. Contact pressure of CGR is _____
202. Inhibited Transformer oil to be used in locomotives is as per IS Specification No.____
203. Pyrometer is used to measure _____
204. In lead acid battery, active material used for positive plate is _____
205. Active material used for negative plate in lead acid battery is _____
206. The electrolyte used in lead acid battery is _____
207. Specific gravity of fully charged cell is _____
208. Hydrometer is used to measure _____ of electrolyte.
209. Thickness of new contact bit of CGR is _____ mm.
210. Thickness of condemned contact bit of CGR is _____ mm.
211. Opening gap of CGR contacts is _____ mm.
212. The rating of ATFEX is _____ KVA.
213. The current through RGR flows when _____ and _____ are closed.
214. Fully charged cell gives off _____ at cathode and _____ at anode.
215. The input supply of CHBA _____ V AC and output V DC.
216. TFVT input is _____ V AC and out put is _____ V AC.
217. The air gap between stator and rotor of MVRH is _____ mm.
218. The air gap between stator and rotor of MVMT is _____ mm.
219. The size of cable connected to ARNO is _____ sq.mm each.
220. Two pole synchronous motor runs at _____ rpm.

221. Value of RGR Resistance is _____ ohms.
222. Rating of RQOP resistance is _____
223. The value of R118 resistance is _____
224. RHOBA resistance is _____ ohms and _____ W.
225. QOP/QOA coil resistance value is _____ ohms.
226. Q30 coil resistance is _____ ohms.
227. Q44/Q118 coil resistance value is _____ ohms.
228. Resistance of QLM/AE/QF/QRSI relays is _____ ohms.
229. The rating of RPS permanent field weakening resistance is _____ ohms.
230. Continuous current permissible through RPS is _____ A.
231. Meter used to check inter turn shorts in EP coils is _____
232. Rating of HRC fuses used in series with RPS is _____ Amps.
233. No. of MP and IP poles used in MEMU traction motor is _____
234. Type of cooling used in MEMU traction motor is _____
235. Continuous rating of MEMU TM is _____ A
236. When MPS in 1 position, the resistance value applied in parallel to the field is _____ ohms in WAP4 locos.
237. Mica thickness of commutator of MEMU TM is _____ mm.
238. Depth of mica under cut in MEMU TM is _____ to _____ mm.
239. The dimension of Brush for MEMU traction motor for NEW is _____ mm And condemned _____ mm.
240. When MPS in 2 positions, the value of resistances applied in parallel to the field are _____.
241. When MPS in 3 position, the value of resistance applied in parallel to the field are _____
242. The setting of cut in pressure is _____ mm WG& cut out _____ mm in QVMT

243. QVSL cut in pressure is _____ and cut out pressure is _____
244. In WAG4 loco the standard setting of BP pressure is _____
245. In WAG4 loco the standard setting of FP pressure _____
246. In WAG4 loco the pressure drop is allowed up to _____
247. In WAG5A loco the BP drop is allowed up to _____
248. In WAG5A loco the FP leak hole drop is allowed up to _____
249. In WAG5A loco the Dual brake loco the vacuum drop should not exceed _____
250. In WAG5A loco the standard setting of RGCP cut in/cut out _____
251. In WAG5A loco the standard setting of QPDJ cut in/cut out _____
252. In WAG5A loco the standard setting of SWC cut in/cut out _____
253. In WAG4 loco the standard setting of QPH cut in/cut out _____
254. In WAG4 loco the standard setting of RGAF cut in/cut out _____
255. In WAG4 loco the standard setting of P1 cut in/cut out _____
256. In WAG4 loco the standard setting of P2 cut in/cut out _____
257. In WAG4 loco the standard setting of RGEB 1 in DBC loco cut in/cut out

258. In WAP4 loco the standard setting of RGEB 2 cut in/cut out _____
259. In WAG5 loco the standard setting of CPA SV (SS1) is _____
260. In WAG5 loco the standard setting of MR Safety valve (SS2) is _____
261. In WAG5 loco the standard setting of CP Safety valve is _____
262. In WAG5 loco the brake application pressure through SA9 is _____
263. In WAG5 loco the BP charging Time through A9 Emergency to release
position Should be _____
264. In WAG5 loco the Brake application/release time through SA9 is _____
265. In WAG5 loco the Brake application/release through A9 for passenger loco is _____
266. In WAG5 loco the brake application/release time through A9 for goods loco is _____

267. In WAP4 loco the contact pressure of pantograph AM 12 is _____
268. In WAP4 loco the raising / lowering time of pantograph is _____ seconds.
269. In WAP4 loco the moralized carbon strips in pantograph are provided to _____
270. In WAP4 loco the Duplex check valve is set at _____
271. In WAP4 loco the minimum pressure required to raise panto AM 12 is _____
272. In WAP4 loco the lowering time of pantograph AM 12 is adjusted through _____
273. In WAG5A the panto raising steps are adjusted by the _____
274. In WAP4 loco during vacuum block test vacuum should not create _____
275. In loco motives Air dryers are provided to adsorb moisture from _____
276. In WAG5A loco the preset level of vacuum is adjusted by the _____
277. In WAP4 loco during BP leak hole test MR pressure should not drop more than ____
278. In WAP4 SMGR PRV setting is _____
279. Vacuum level setting at WAM4 dual brake loco dummy/disc is _____
280. In WAG5A loco the setting of HS4 control valve is _____
281. In WAG5A loco the Auto drain valve is provided to drain the moisture from _____
282. In WAG5A loco the purpose of Unloader valve is to avoid burning of _____
283. In WAG5A loco the permissible limit of Transverse flexibility of pantograph is ____
284. In WAG5A loco the brake cylinder pressure through _____
285. Trip inspection is carried out after _____ Kms for passenger, & _____
Kms for Freight locos.
286. Wheel set clearances is being measured during _____ schedule.
287. Pinion and bull gear ratio of a WAG 7 loco is _____
288. In WAG5A loco the fitted with Hitachi TM gear ratio _____ is used.
289. The axle load of WAG9 is _____
290. The energy consumed by an electric loco per thousand GT KM is _____
291. Capacity of battery provided in electric loco is _____ ampher per hour.

292. Purpose of MVRH is _____
293. Primary Helical Spring is used in _____ type of loco.
294. Thickness of Flange at 5 mm Flange wear is _____
295. RPS is used to _____ field of Traction Motor.
296. IP Coil is used to improve _____
297. Higher gear is used for _____ starting torque.
298. Bibby Coupling is provided to couple _____
299. DGA stands for _____
300. Equivalent resistance of 5 ohms Resistor and 3 ohms Resistor connected in parallel is _____
301. Type of Pantograph used for WAG5 loco is _____
302. RSI block is _____ Wave Rectifier.
303. Q-20 Relay is a _____
304. Bo-Bo bogies have _____ no. of axles in each bogie.
305. In DBR operation, traction motor works as _____
306. AM12, AM92 are the type of _____
307. Every loco should be provided with _____ nos. of Fire Extinguishers.
308. Brake application and release timing through A-9 should be ____ to ____ sec. while dispatching the loco from shed.
309. Through SA9 brake application time is _____
310. BC Piston travel should be _____ to _____ mm for WAP 4 locos.
311. Blockage test is conducted for _____ brake system.
312. With two CPs in working loco alone, the BP pressure should be attained within _____ seconds.
313. SP-90 is the _____ type of speedometer.
314. _____ switch is provided to switch off signaling lamp of rear loco in MU.

315. Minimum air pressure required to raise the panto is _____ kg/cm²
316. Opening time of VCB should be less than _____ m/sec.
317. Nominal rating of Hitachi Traction Motor is _____
318. Opening time of air blast circuit breaker is _____
319. The class of insulation used in Hitachi Traction Motor is _____
320. Maximum starting current of Hitachi Traction Motor is _____
321. Continuous current rating of Hitachi TM is _____
322. Inductance value of each coil in smoothening reactor SL-30 is _____
milli Henri At 1350 amps.
323. The class of insulation used in SL-30 is _____
324. Continuous rated current of Rheostatic braking resistance is _____
325. The value of Rheostatic braking resistance parameter at 600 °C is _____
326. The type of meter used for measuring voltage and current of Traction Motors is
_____ (a. moving coil, b. moving iron, c. a & b).
327. The type of meter used for measuring Auxiliary circuit voltage is _____
(a. moving iron, b. moving coil).
328. The setting value of high voltage over load relay, QLM is _____
329. The setting value of high voltage over load relay, QRSI is _____
330. The setting value of over load relay for braking excitation is _____
331. The setting value of over load relay QF is _____
332. The setting value of QD relays _____ DC amps pick up _____ DC amps drop out.
333. The signaling relay _____ is used to indicate LSCHBA.
334. The maximum and minimum limits for buffer height adjustment of Electric
Locomotives are maximum _____ mm and minimum _____ mm.
335. The number of side bearers in WAG7 locomotives _____ Nos.
336. The setting value of Auxiliary circuit over load relay (QLA) is _____

337. No voltage relay (Q-30) pick up at _____ voltage AC drops out at _____ AC.

338. The load protection relay (QCVAR) for ARNO picks up at _____ volts

AC and Drops at _____ volts AC

339. The cut in pressure of QVMT relay is _____ mm WG cut out pressure _____

(140-142) mm WG.

340. The cut in pressure of QVRH/QVSL relay is _____(50) mm WG cut out pressure

_____ mm WG.

341. The ratio of TFILM in WAG7 is _____

342. The ratio of RSILM in WAG7 is _____

343. The ratio of ELM in WAG7 is _____

344. The QD-1 relay is connected in between ____ and ____ Traction Motors.

345. The QD-2 relay is connected in between ____ and ____ Traction Motors.

346. The vertical type DBR, the QVRF relay is by passed between _____ to _____ notches

347. The range of operating pressure of pressure regulating valve (PRV) in SMGR in

_____ to _____ kg/cm²

348. The PHGR works between ____ to ____ notches.

349. The signaling relay _____ is used to indicate LSDJ.

350. The signaling relay _____ is to indicate LSGR.
351. The signaling relay _____ is used to indicate LSB.
352. What is the length of the WAG5 locomotive bet buffer ends_____.
353. What is the Gear ratio of a wheel set in WAP4 _____
354. What is the diameter of the new wheels sets_____
355. What is the lower limit of the wheel diameter for
condemnation/Re-discing in good
loco_____
356. What is the limits of the Flange wear and Root wear_____
357. What is the distance to be maintained between wheel disc
and the brake block _____
358. What is “L” type of brake blocks
&Advantages_____?
359. What is the wheel to wheel distance of wheel set_____?
360. What is the height of the sandwich mounting pad_____?
361. What is the diameter of an Axle _____?
362. What is the journal dia of an axle_____?
363. What is the free height of an outer Helical Spring_____?
364. What are the axle box clearances of a
bogies_____?
365. What is the allowable wheel diameter difference on the
same axle_____?

366. Wheel diameter difference on two axles of the same bogie_____?
367. Wheel diameter difference on bogie to bogie_____?
368. What is the height of the buffer _____?
369. What is the height of the rail guard_____?
370. What is Brake cylinder piston travel when brakes are in applied condition _____?
371. What is the height of the center pivot_____?
372. What is the height of the side bearers_____?
373. What are the different types of track gauges used in Indian Railways_____?
374. What is the stopper to stopper distance of a wheel set _____?
375. What is the function of a SB – pump _____?
376. What is the length of the equalizer assembly of a bogies- _____?
377. What is B H N _____?
378. What is the tightening sequence of the bolts for TM axle cap_____?
379. How the vertical load of a locomotive will be transmitted through center pivot_____?

380. and load bearers in WAG5 & WAM4_____?
381. What is the of each gear case_____?
382. What is the torque applied to an axle cap bolt of WAP4_____?
383. How many snubber coils will be available in the locomotive_____?
384. What is CBC_____?
385. What is the type of suspension in Co-Co bogie_____?
386. What is stress_____?
387. How to find out a bogie crack_____?
388. What are the correct lubricants recommended by RDSO for suspension bearing Of TAO-659_____?
389. What is recommended to apply over roof insulators to avoid flashing in Winter season_____?
390. What is the diametrical clearance between the axle and the suspension bogie_____?
391. How suspension bearings will be checked_____?

392. What are the various diameters of journal of a wheel set is used in service_____?

393. The Traction Motor nose-suspension lugs on the bogie frame transoms is
how much_____?

394. The temperature rise permitted on TAO-659 SB is _____ ° C

395. The temperature rise permitted on TAO-659 AB is _____ ° C

396. What are the radial clearances for WAG-5 Axle Box bearings during service_____

397. What is the classification of loco failure_____?

398. Types of maintenance schedules being carried out in Electrical loco shed_____

399. Types of maintenance schedules being carried out in trip sheds_____

400. Periodicity of AOH schedule for freight locos_____

401. Periodicity of IOH schedule for freight locos_____

402. Periodicity of POH schedule for freight locos_____

403. Periodicity of IC schedule for freight locos_____

404. Periodicity of IB schedule for freight

locos_____

405. Periodicity of POH schedule for

coaching locos_____

406. Periodicity of IOH schedule for

coaching locos_____

407. Periodicity of AOH schedule for

coaching locos_____

408. Periodicity of IC schedule for

coaching locos_____

409. Periodicity of IB schedule for

coaching locos_____

410. Periodicity of IA schedule for

coaching locos_____

411. If there was any fault in the

QPH/QVSL1/QVSI2/QVMT1/QVMT2 or concerned

Motor is defective which relay de-energizes first and how much time will be taken

For tripping DJ._____seconds.

412. During wheel slipping which relays acts and what indications will be observed on

Drivers desk_____

413. CLW : CHITTARANJAN LOCOMOTIVE WORKS

**414. COFMOW : CENTRAL ORGANISATION FOR
MODERNISATION OF
WORKS SHOPS**

**415. DGS&D : DIRECTOR GENERAL OF SUPPLIES AND
DISPOSAL**

416. M&P Items : MACHINERY AND PLANTS ITEMS.

417. RSP : ROLLING STOCK PROGRAMME

418. PAC : PROPERTY ARTICLE CERTIFICATE

419. PL No : PRICE LIST NUMBER

**420. RITES : RAIL INDIA TECHNICAL, ECONOMICAL
SERVICE**

421. PNM : PERMANENT NEGOSHIATION MACHINERY

**422. Stores Materials are broadly divided
into categories_____**

423. Imprested items are under custody of stores depot. True or False

**424. Local purchase can be made by Stores Department for Stock
and Non Stock items.**

**425. Executive Department can purchase materials directly. True or
False.**

426. Initial Spares for locos are procured from _____

427. Single Tender is processed for items under PAC. True or False

428. COFMOW deals with M&P items. True or False

429. Stores are broadly classified by their total value in three categories A,B,C.

True or False

430. DGS&D deals with Rate Contract items only. True or False

431. Who are the authorities issuing the approved sources of supply for various

loco items_____?

432. For drawl of subsistence allowance during suspension period_____ certificate is

to be produced by the suspended employee.

433. Under D&AR rules, the two types of penalties are _____ &

434. Charge sheet under major penalty class is issued in SF_____

435. Custody under police for a period of _____ hours is deemed to be the period under

Suspension.

436. The four different categories of Railway employees under HOER are:

437. Maximum No. of Leave on Average Pay that can be accumulated is _____ days.

438. Railway Servants in Group 'C' & 'D' after completion of ____ No. of years of

Service of service are eligible for 3 set of privilege passes.

439. The two major Trade Union Organizations are _____ and _____

440. Name any two penalties under minor penalty purview _____

441. Name any two penalties under major penalty purview _____

442. Name any two Services Conduct Rules _____

443. 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.

444. The Railway servant while attending AOH locos, he ha 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. _____

445. The Period 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.

446. The State Railway Provident Fund (SRPF) rules will not apply to Railway servants

Entering into service on or after _____

447. Powers of Suspension to an Assistant Officer in respect of Group C&D staff up to

And including pay scale of Rs. _____

448. Suspension is not a _____

449. Out of minor penalties under D&AR, the lowest penalty shown in Rule 6 is _____

450. An order passed by an inquiring authority in the course of an enquiry under Rule 9

against which appeal lies. Yes or No

451. The limitation of time for an appeal in D&A Rules, 1968 is _____ days.

452. Should a Government servant require obtaining prior permission to join a chit fund?

Yes or NO

**453. The inquiring officer is nominated by _____
in D&A Rules, 1968.**

**454. _____ days time is to be allowed to the charged
employee for submitting his
written statement of defense.**

**455. If the charged official does not appear before the Inquiry
officer, the inquiry
may be held _____**

**456. The inquiry officer during inquiry has to first examine witnesses of
_____**

**457. What is full form of D&AR
? _____**

**458. 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 _____**

**459. 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?**

460. Under the Hours of Employment Regulations, the artisan staff working in ELS is

Classified as _____

461. What is the qualifying service for a Railway servant to retire from service

Voluntarily. _____

462. Grant of “leave not due” in entire service to a Railway Servant is limited to ___ days.

463. The powers for transfer of Group C&D staff on Inter Railway basis lies with _____

464. The powers for transfer of Group C&D staff in case of inter divisional transfer

Lies with _____

465. The total deductions including payment to co-operative societies from an employed

Person shall not exceed _____% of such wages.

466. The wage period under the payment wages Act shall not exceed _____

467. The over-time allowance is payable in case of beyond roistered hours _____

time of ordinary wages.

468. The full form of the abbreviation

“S.O.P.” _____

469. The full form of the abbreviation

“ACR” _____

470. Conducting of an inquiry is not necessary for _____ penalty.

471. The Appellate Authority is _____ than DA.

472. 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

473. In case the penalty in a case is adequate, the appellate authority

the penalty imposed by the DA.

474. If the penalty ordered is severe with reference to the
nature of misconduct, the

Appellate authority can _____ the penalty imposed by
DA.

475. The D&A Rules are not applicable to _____ staff.

476. The D&A Rules are not applicable to any person who is in

477. Holding of inquiry is necessary in case the charged
employee admitted all the

articles of charges framed against him. True or False

**478. What is the standard form to be issued to a Railway
Servant for imposing minor**

**479. The inquiry officer should be _____ in rank
to the charged official.**

480. What is the Official Language (Raj Bhasha) in Indian

**481. Name two incentives for passing departmental exams in
Official Language _____**

**482. How many languages are included in the VIII Schedule of
the Constitution of India?**

**483. For the purpose of implementation of official language, the
Union of India is**

devided into _____ regions.

484. How many windings are available in TFP of WAG9 loco.

485. Out put volatage of aux winding of WAG9 loco is

486.key is used for oerating HOM in WAG9 loco.

487. _____ switch is used to select the panto in working.

488. The rating of traction Motor in WAG9 loco isKW

489. The speed control system used in WAG9 loco is _____

490. _____ number of subsystems are available in three phase locos.

491. Harmonic filter resistance in WAG9 loco is located at _____

492. _____ number of main reservoirs are provided in WAP5 loco.

493. _____ positions are there in WAG7 loco.

494. Explain the following related with three phase locos

495. Parking brake in WAG9 loco is arranged is provided in
wheel No's _____

ESSAY TYPE QUESTIONS

- 1. Draw neat power circuit diagram of WAG5 loco with all major components, rating from pantograph to feeding of power to TMS.**
- 2. Explain the purpose of earthing of battery –ve intentionally and the problem of -ve Bonding and How to overcome this problem en-route by driver?**

- 3. Draw the DJ control circuit of WAG5 loco and explain how DJ will hold in HT?**
- 4. Write the procedure for overhauling of TAO659/ Hitachi Traction Motor?**
- 5. Explain the purpose of providing earth fault protection relays in power circuit and also explain how earth fault relay energizes, with a neat diagram, Suggest preventive measure to be taken during normal maintenance schedules to avoid earth faults?**
- 6. Write the charging and discharging procedure to be followed for commissioning of new batteries?**
- 7. Write briefly about all the safety relays, their ratings and how they cause tripping of DJ/VCB in the event of abnormality in loco?**
- 8. Draw the control circuit for tap changer of WAG5 loco to explain how notch-by-notch progression and regression takes place?**
- 9. Draw the power circuit diagram and name parts and ratings of equipments (e.g. TM circuit & Aux. Circuit) for WAG-7 locomotives?**
- 10. Draw the compressor control circuit and explain for WAG7 loco with 3 CPs.**
- 11. Explain the DBR functions and advantages of DBR?**
- 12. Mention the probable reasons for fire on loco/ what are the items to be checked to avoid fire on loco?**

- 13. Draw the control circuit diagram of DJ for locomotive fitted with vacuum circuit breaker.**
- 14. What are the probable reasons for the wheel slip and remedial actions to be taken for avoiding wheel slip?**
- 15. What are the major differences between WAG7 loco and WAP4 loco?**
- 16. What are the advantages of WAP4 loco over WAM4 loco with details of major changes in equipments?**
- 17. What are the major defects arise in TFP and describe briefly the cause and their remedial action?**
- 18. What are the major failure in TM and describe briefly the causes and their remedial action?**
- 19. What are the major improvements done in TAO-659 Traction Motor design?**
- 20. What are the major failures of Auxiliary motors? What is the process for Vacuum Pressure Impregnation to Aux. Motors and it's advantages?**
- 21. What are the advantages of microprocessor based control system of locomotive over the conventional control system?**
- 22. Draw flow chart of the Traction Motor overhauling and what are the various tests**

to be done after over hauling of TM?

- 23. What do you mean by the condition monitoring of the equipment? Discuss briefly the various condition monitoring techniques adopted in Electric loco shed?**
- 24. What are the reasons for ICDJ and give remedial measures?**
- 25. What are the reasons for auto regression with LSP and their remedial action?**
- 26. What do you mean by destructive and non-destructive tests? Describe briefly the various destructive and non-destructive tests carried out on Electric Locomotives?**
- 27. Describe the trouble shooting in case of CCPT melting and give five reasons for fuse melting.**
- 28. Describe the trouble shooting when QOP acts on higher notches with QRSI?**
- 29. Draw the flow chart of ARNO overhauling. What are the checks to be done during overhauling of ARNO?**
- 30. Draw the circuit diagram and explain the working principal of loco transformer.**
- 31. Describe the working principal of ARNO with sketch.**
- 32. Describe the tap changer operation and it's working principle.**
- 33. Mention the common defects in working of GR and suggest remedial action.**
- 34. Describe the procedure for over hauling the GR.**

35. Name the checks to be made during over hauling and final testing of GR.
36. Name the checks to be done on Tap change during IC schedules.
37. What is the principle of PHGR? Discuss the troubles noticed in PHGR.
38. What is the purpose of provision of oil pump device in PHGR circuit?
39. What are the tests to be conducted on TFP oil and mention the standard values of various parameters?
40. What are the common failures in VCB, ABCB?
41. Explain how auto flasher works in Electric locomotives?
42. In WAG 5 describes the function of the following valves?
 - a) A9 & SA9 brake valve
 - b) C2 (BP & BC) relay valve.
43. Draw the neat diagram of pantograph and indicate its major components. Give the reasons for entanglement of pantograph and explain its remedies.
44. Why Air dryer is provided in locomotives and explain its function and advantages in loco?
45. Suggest the improvement measures to be taken in shed to avoid the pneumatic failures on line?
46. Explain the working of AFI and Airflow measuring valve
Explain the working of C3W valve, VAIB valve Airflow measuring valve.
47. Explain briefly about the various schedule maintenance done during IA, IB, IC

and their periodicity. Explain briefly about the various schedule maintenance done during AOH & IOH.

- 48. What are the must check pneumatic items at the time of dispatch? And write their settings. What is the procedure for welding a bogie crack as suggested by RDSO?**
- 49. What is meant by 'backlash' and what are the permissible values for TM/ wheel matching?**
- 50. Describe the mounting procedure of a suspension Bearings and various clearances to be checked/maintained during mounting?**
- 51. What are the checks being carried out before dismounting the suspension bearing in case of failure?**
- 52. Describe the types of defects experienced on suspension bearing of TAP 659 with remedial actions?**
- 53. What is the discharge rate of a good suspension – bearing pump and explain the working of oil pump along with checks to be done during various schedules?**
- 54. What are the procedures to be adopted to weld wear plates on the Bogies?**

- 55. Explain the main features of Energy cum speed monitoring system and what are the parameters recorded and reported in this system?**
- 56. Explain the fire preventive measures recommended by RDSO?**
- 57. Explain the working of twin beam headlight with DC-DC converter?**
- 58. What are the types of various bearings used in AC locomotives? Explain the procedure for overhauling & storing precautions to be taken during extraction and mounting?**
- 59. What are the unit Exchange spares and the recommended percentage for maintaining healthy unit exchange spares and explain the steps to be taken for improving healthy Unit Exchange Spares.**
- 60. What are the various types of records being used for maintenance of electrical locos at loco shed?**
- 61. What are the various sections in Electric Loco Shed for carrying out various inspections and repair activities on Electrical locos?**
- 62. Describe the procedure for reporting accidents. What is the procedure for conducting accident enquiries.**
- 63. What is the periodicity of various schedules for freight and coaching locos?**
- 64. What are the purchase powers of officers direct and through tender committee?**
- 65. What are the items defined and capital spare of loco and through which programme**

such items are to be procured?

- 66. What are the types of Rolling Stock programme and the process to be followed?**
- 67. What is Rate Contract and Running contract? Explain the differences between these two? Give examples for items being purchased under these contracts.**
- 68. What are the items to be procured under Non-stock and how a Non-stock indent is prepared?**
- 69. What is the limit to process without account vetting?**
- 70. What is meant by proprietary article item and its schedule of powers of indenting officer?**
- 71. What is the A,B,C categorization of stores items?**
- 72. Specify various categories under HOER with periodic rest and duty roster hours applicable to them.**
- 73. Explain the system of rising and lowering of pantograph of AC loco.**
- 74. Explain the method of operation of tap changer. Give the sequence of operation of CGRs.**
- 75. What are the probable reasons for half notch sticking in SMGR? Mention remedial measures.**

76. Specify three important items to be checked during maintenance of rectifier cubicles and the major defects occur in RSI duly mentioning the remedial measures.
77. What is primary and secondary suspension? Describe the type of suspension provided in WAG5 locomotive?
78. Explain the primary and secondary suspension in WAP4 loco? What are the remedial measures to be taken to minimize the failures of primary helical springs?
79. What are the items checked while assembling bogie from wheel sets removed from different locomotives? What are the maximum variations permitted in wheel diameters for this assembly?
80. What is root wear and flange wear? What is the maximum permitted wear?
81. What is the function of protective relays QLM, QRSI, QOP, Q-20 & QCVAR. How these relays are connected in circuit in WAG5 loco?
82. Describe sequence of closing DJ?
83. What are the probable reasons for DJ tripping during fault conditions? How can they be differentiated during trouble shooting?
84. What is sixth notch tripping of DJ? Why does it take place? Explain the action to be taken by driver to overcome this. What are the conditions to be satisfied for energizing Q-50? Draw the relevant circuit diagram.
85. Describe the conditions in which auto regression takes place in WAG5 loco.
86. What are the different signaling lamps provided in WAG5 locomotive? How the status

of equipments associated with them is conveyed to driver?

- 87. What are the advantages of 3 Φ locos over conventional locos.**
- 88. Draw the feeding and traction power circuit of WAG9 loco.**
- 89. What are the special features of 3 Φ locomotives.**
- 90. How many types of brakes are there in 3 Φ locos and explain about each in brief.**
- 91. Explain briefly about re-generative braking in 3 Φ locos.**
- 92. Explain the mechanical features of 3 Φ locos in WAG9 and WAP5.**
- 93. Explain in brief the types of Auxiliary motors provided in 3 Φ locos**
- 94. Explain the concept of Variable voltage and variable frequency used in 3 Φ locos**
- 95. Explain about the cooling concept used in WAG9 loco.**
- 96. Explain the distribution of load when one of the Auxiliary converter is isolated in WAG9 loco.**
- 97. What the various maintenance schedule on 3 Φ locos and its periodicity.**
- 98. Explain about the following**
 - Method of changing speed of AC 3 Φ motor over wide range**
 - GTO and IGBT in electronics**
 - Chopper control**
- 99. Draw the power circuit diagram of EMU/MEMU indicating all the parts with ratings.**
- 100. Explain any ten relays used in EMU/MEMU with purpose, location and setting values.**
- 101. Explain with block diagram the working of EP unit in EMU/MEMU**
- 102. Explain various maintenance schedules and periodicity in the conventional locos/EMU/MEMU**
- 103. Mention the ratings of major equipments in EMU/MEMU.**

