SELECTION FOR THE POST OF SECTION ENGINEER (DIESEL) (ELECTRICAL)

Time: 3 Hours **Total Marks: 100**

PART-A

(Answer any FIVE questions from 1 to 9 and Question No.10 compulsory)
(6 x 10 = 60 Marks)

1. (a) Advantages of Microprocessor Based controlled system over the existing E-type Loco Control system.
   (b) What is Event Recorder and what type of data it records in Microprocessor Based Controlled System Loco.

2. Explain any one of the excitation system adopted in Diesel locomotives with block diagram.

3. (a) List out common defects noticed in Roller bearings used in Electrical Traction Machines and give reasoning.
   (b) Action taken to improve the Low insulation value in Traction Motor.

4. Write short notes on any **four** of the following:-

   (i) Monsoon and Summer precautions
   (ii) List out the items suggested for Crew Friendly cab.
   (iii) Modifications suggested to eliminate power rectifiers short circuit in High Horse Power locomotives.
   (iv) Significance of Self Load Test adopted in the Microprocessor Controlled based system locomotive.
   (v) When wheel slip occurs? Indicate the reasons for wheel slip during First transition.
   (vi) What is Class 200 insulation and where it has been adopted?

5. Explain the object of conducting Load Box Test and what are all the adjustments made and observations recorded during the test.?

6. (a) What are the additional features adopted in Speed Recorder of latest version MRT 918 with the earlier version MRT 912.
   (b) Common defect noticed in the Speed Recorders.

7. Describe the sequence of activities in rewinding the Traction Motor Armature from preliminary stage to final testing.

8. (a) Explain in brief 4 System improvements carried out on the Diesel locos for improving the operational reliability.
(b) Suggestion to improve the Reliability of the Locomotive performance.

9. (a) Explain stocked items and non-stocked items
(b) What are the Minor Penalty charge sheet? What are the steps involved in imposing a minor Penalty charge sheet?

10. What is OLIC? Describe its aims and objectives.

PART - B
(Answer all the questions)

1. **Fill in the blanks:- (10 x 2 = 20 Marks)**

a) The gear ratio between pinion and bull gear of TM 7362 in WDP 2 Loco is..... .....

b) In low Idle feature the engine RPM reduced from 400 to 350 by energizing the solenoids of Woodward Governor ..... and ..... .

c) Engine cannot respond more than 4th notch RPM when lube oil temperature is less than ..... in Microprocessor based controlled locos.

d) ECC gear ratio of YDM4 loco.....

e) The horse power rating of the Dy.Brake Blower Motor.....

f) The bearing used for ECC outer rotor .....

g) GE Governor clutch coil current ..... and Speed coil current .....

h) The approved grade of carbon brush for Traction Alternator .....

i) On a Roller suspension bearing Traction Motor type TM 7362 the commutator end bearing is ..... and pinion end bearing is .....

j) Permissible Pinion advancement fitment on BG Traction Motor is between .....

2. State True or False (5 x 2 = 10 Marks)

a) A Diode along with capacitor is connected wire No. 71 and 4 to suppress the negative spikes generated on the control voltage.

b) RCD connected in the battery charging circuit to protect the battery from discharging through Auxiliary generator when the machine fails to generate voltage.

c) Non stock indents are prepared in Standard Form No. S 1313.

d) WDM2 Locos are rebuilt to 3300 HP at DMW after 24 years.

e) Demand No.5C-300 is for Diesel Loco maintenance spares.

3. Choose the correct answer (5 x 2 = 10 Marks)

a) The type of transmission available in DHMUs is
(i) Electrical (ii) Mechanical (iii) Hydraulic (iv) Pneumatic

b) Field shunting Resistor across Traction Motor field is
(i) to reduce the loco speed (ii) to minimize back EMF
(iii) to increase the loco speed (iv) to increase the back EMF

c) Maximum LHAP that can be accumulated by an employee is
(i) 300 + 15 days (ii) 180 days (iii) 500 days (iv) No Limit

d) Tacho Generator is a
(i) 3 Phase 6 Poles permanent magnet AC generator
(ii) 3 phase 3 Poles permanent magnet AC generator
(iii) Single Phase 40 poles AC generator
(iv) None of the above

e) Engine over speed setting done in WDS4B Locos
(i) 104 Relay (ii) 114 Relay (iii) 121 Relay (iv) 120 Relay

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