

Written test for selection for the post of Section Engineer/Dsl/Mechanical in Scale Rs.6500-10500 under 80% promotional quota – Mechanical Department.

Total Marks: 100

**Date: 1:
Duration**

PART-A: Answer all the questions.

I. Choose the correct answer:

(1) Which of the classification does a diesel engine belongs to

- (a) External combustion engine**
- (b) Internal combustion engine**
- (c) Both of the above**
- (d) None of the above.**

(2) The engine of WDM2 loco is

- (a) Inline engine**
- (b) Opposed cylinder engine**
- (c) Opposed Piston engine**
- (d) None of the above.**

(3) Diesel engine in practice works on

- (a) Otto cycle**
- (b) Dual cycle**
- (c) Either of the above**
- (d) None of the above**

(4) The condemnation limit of a loco wheel is

- (a) 1014 mm**
- (b) 1017 mm**
- (c) 1010 mm**
- (d) None of the above.**

(5) The firing order of a 12 cylinder 251 engine is

- (a) 1R1L 4R4L 2R2L 6R6L 3R3L 5R5L**
- (b) 1R1L 5R5L 2R2L 6R6L 3R3L 4R4L**
- (c) 1R1L 4R4L 3R3L 6R6L 2R2L 5R5L**
- (d) 1R1L 4R4L 2R2L 5R5L 3R3L 6R6L**

II. Expand the following:

(2 x 5 = 10)

- (6) HOER
- (7) MSU
- (8) SFSRR
- (9) DHMU
- (10) WCA

III. True or False:

(2 x 5 = 10)

- (11) Thickness of blade of the top deck of power pack in the 16 cylinder WDM2 ALCO engine is 24 mm.
- (12) Elongation of ^{main} plain bearing bolt without washer is 0.02".
- (13) Needle bearings are used in the small end of the ^{connecting rod} crank shaft fitted on upgraded compressor.
- (14) Roller bearing suspension arrangement of traction motor does not require MSU.
- (15) Original Firing Order of 16 cylinder 251 engine is 1R1L 5R5L 7R7L 3R3L 8R8L 4R4L 2R2L 6R6L.

IV. Fill in the blanks:

(2 x 5 = 10)

- (16) Lubrication used in traction motor bearing for the pinion end is _____
- (17) The TRD of 3100 HP ABB turbo is _____
- (18) Standard compressing ratio of ALCO engines of 3100 HP is _____
- (19) Condemnation limit of piston is _____
- (20) The dia of new diesel loco wheel is _____

V. Match the following.

(2 x 5 = 10)

Loco type	Fuel tank capacity (in litres)
WDG3A	2700 3200
WDS6	6000
WDM3A	2700
WDG4	5000
WDM7	5000
	6000

PART – B: Answer any five questions (Q.No.1 is compulsory) (10x5=50)

1. What are the incentives for progressive use of Hindi for Railway servants who are newly recruited.

(or)

Trace the progressive effect of OLIC in your shed/shop.

(or)

Write a letter in Hindi addressed to Dy.CRA/S.RLy requesting for participation in a Hindi cultural event.

2. Draw and explain with a neat sketch the various features that enabled upgradation of the original ALCO loco.

3. What are the tell-tale signs for defects in the lube oil system. Explain each tell-tale sign in detail.

4. Explain the various features of suspension system and schematic diagram of wheel set (excluding axle box) indicating leading dimensions and profile.

5. Explain the various parameters that are to be monitored during load box test and explain the corrective actions required for any two parameters monitored.

6. Explain the advantages of using compressors for working passenger trains and also explain the maintenance given from trip to yearly schedule.

7. Explain in detail the reclamation process adopted in any of the 3 vital components of diesel loco indicating RDSO instructions in this regard.

8. Explain in detail the cooling water circuit in a loco indicating maintenance given on any two of the sub-systems.
