

INTEGRAL COACH FACTORY, CHENNAI-38.

MECHANICAL DEPARTMENT

Written examination for the Selection to the post of ACMT (Group-B) in Pay Band-2, Rs.9300-34800 (Grade Pay Rs.4800) in Lab Organisation (C&M Wing).

Date: 22.01.2016

Max. Marks: 150

Instructions:

1. Time allowed is 3 hrs plus 10 minutes for going through the Question paper.
2. **Part-A:** Deals with Professional Subject. Max. 100 Marks.
3. **Part-B:** Deals with Establishment & Financial rules as well as Official Language Policy. Max. 50 Marks.

PART - A

**Answer any Five of the following:
Each Question carries 20 Marks.**

- I. (a) Describe Painting Process of a conventional ICF coach describing work done at various stages after the shell is received from Shell Division and before it is taken on belt. (10 Marks)
- (b) What is the difference in painting procedure adopted for LHB coaches as compared to conventional ICF coaches? What do you mean by garnet blasting? (10 Marks)
- II. (a) What is the difference between Destructive and Non-destructive testing? Describe any two Non-destructive testing procedures. When and where do we use spectrographic analysis? (10 Marks)
- (b) Describe Corten Steel; Ferritic Stainless Steel and Austenitic Stainless Steel. Indicate in the following table, type of steel weld for the following: (5+5 =10 Marks)

S.No.	Member	Type of Steel
1	LHB Underframe	
2	Sidewall	
3	Roof	
4	Trough Floor	
5	Fiat bogie frame	

- III. (a) Describe the following Welding Techniques: (2 Marks each)
- i) MIG Welding
 - ii) TIG Welding
 - iii) Resistance SPOT Welding
 - iv) Laser Welding
 - v) Friction Welding

(b) Describe the following Metallurgical properties:

- i) Ductility
- ii) Malleability
- iii) Torsional Strength
- iv) Shear Strength
- v) Weldability

IV. (a) What are the various causes for Roller Bearing failures? Describe preventive steps to bring down Roller bearing failures in coaches in Open Line. (5 Marks)

(b) What are the Toxicity and inflammability tests prescribed for furnishing material in Railway Coaches? (5 Marks)

V. (a) Write Short Notes on: (2 Marks each)

- i) Testing of Compreg
- ii) Testing of Recron
- iii) Testing of Rexene
- iv) Testing of PVC Flooring
- v) Etch priming in LHB coaches

(b) What are the type test and acceptance test required to be conducted for Paints according to RDSO specifications? What is the difference between Alkyd Paints and PU Paints? (10 Marks)

VI. (a) Write Short Notes on : (2 Marks each)

- i) Sound insulation Paint
- ii) Anti Graffiti Paint
- iii) Insecticidal Paint
- iv) High performance paint
- v) Water based PU paint

(B) (i) Describe Ultrasonic testing of Axles. What is the difference between cold breakage and hot breakage of Axle journal? Where are the markings made after Ultrasonic testing of Axles? (5 Marks)

(ii) What is the role of Coolant in a Machine? How do you test transformer Oil? (5 Marks)

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PART- B

**Answer any Five of the following:
Each Question Carries 10 Marks**

- I. (a) Describe Official Language Policy of Government of India. (5 Marks)
(b) What steps have been taken by ICF Administration to promote Official Language policy of Government of India? (5 Marks)
- II. (a) State 2 types each of Major and Minor penalties. (2 Marks)
(b) Name different types of Leaves enjoyed by a Railway Employee. (2 Marks)
(c) Does Suspension of an employee amount to punishment under D&AR Rules? (2 Marks)
(d) When process under Rule 14(2) is adopted to remove a Railway Employee from service? (2 Marks)
(e) Tamil Nadu falls in which category as per Official Language Policy? (2 Marks)
- III. Describe various stages of Railway Budget. In your opinion what steps can be taken by ICF Administration to control expenditure? (10 Marks)
- IV. Write Short Notes on the following: (2 Marks each)
- i) Works Programme
 - ii) M&P Programme
 - iii) Rolling Stock Programme
 - iv) Non-Stock Indent Vs Procurement of stock item
 - v) Organisational Structure of C&M Organization on Indian Railways.
- V. What are the Working Hours for Day Shift/Night Shift on Week Days and Saturdays for Shell/Fur. Factory? What are the Official Duty Hours of Administrative Office? (10 Marks)
- VI. Write Short Notes on the following: (2 Marks each)
- i) HOER
 - ii) Employee Compensation Act
 - iii) Incentive Scheme in ICF
 - iv) Name Zonal Railways & PUs of Indian Railways
 - v) Organization Structure of ICF.
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