

SELECTION FOR THE POST OF AME (GROUP B) IN MECHNCIAL DEPARTMENT  
THROUGH DEPARTMENTAL SELECTION (70% QUOTA)

Date: 25-04-2018

Maximum Marks: 150

INSTRUCTIONS (Read Carefully)

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- (i) Time allowed is **THREE** hours – 10 minutes extra for reading the question paper.  
(ii) Question paper has 4 sections

**SECTION – A:** It contains 1 question of 15 marks on Rajbhasha. This is optional. If you answer this question, you must answer only 3 from SECTION C.

**SECTION – B:** It has 2 questions. Question No.2 (40 marks) and Question 3 (20 marks). Both are compulsory.

**SECTION – C:** It has SIX questions of 15 marks each – Candidates can attempt any 4. If you attempt Question 1 of SECTION A, then answer any 3 from this section.

**SECTION – D:** It has 6 questions of 10 marks each. Answer any 3.

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**SECTION A**

	Marks
1.1 List out any 5 documents, which must necessarily be issued in bilingual form under Section 3(3) of the Official Language Act, 1963.	5
1.2 What are the different qualifying examinations for Rajbhasha?	5
1.3 What should you do for successful implementation of the Rajbhasha Policy?	5

**SECTION B**

**Question 2**

(40 marks)

There are 20 questions of multiple choice type with two marks each.

2.1 The 1600hp DEMUs currently being manufactured by ICF are equipped with (A) AC-DC Transmission                      (B) Voith Transmission (C) AC-AC Transmission                      (D) ZF Hydraulic Transmission	2
2.2 Standard 3834 is related to (A) Painting                                      (B) Green Energy (C) Productivity                                (D) Welding	2

2.3 During the year 2017-18, how many LHB Coaches were turned out by ICF (A) 2503 (B) 1000 (C) 1111 (D) 551	2
2.4 SPART is a (A) 3- coach train (B) 2 coach train (C) 18 car train (D) Single car inspection saloon	2
2.5 Sidewalls of LHB Shell are made of SS sheets (A) 2mm thick (B) 3mm thick (C) 1.5mm thick (D) 5mm thick	2
2.6 What is the flash time maintained after applying one coat of PU finish coat in paint booth before taking the coach to the oven? (A) 15 minutes (B) 30 minutes (C) 45 minutes (D) 60 minutes	2
2.7 Who received the Award for Transformation Initiatives for ICF during this year's Railway Week Awards at the Board Level? (A) CWE/Shell (B) CWE/Furnishing (C) CDE/Mech (D) GM/ICF	2
2.8 What is the minimum Dry Film Thickness of paint prescribed on LHB Bogie Frame? (A) 100 microns (B) 275 microns (C) 375 microns (D) 175 microns	2
2.9 In EMUs Air Springs are used in (A) Primary Suspension (B) Secondary Suspension (C) None (D) Both	2
2.10 Full form of DETC manufactured by ICF is (A) Diesel Electric Tower Car (B) Direct Energy Trailer Car (C) Diesel Electric Train Coach (D) Dual Energy Tourist Coach	2
2.11 Train-18 is the name given to (A) 3-phase EMUs (B) All 18 coach trains (C) Trainsets with underslung electrics (D) LHB Coach of 2018	2
2.12 LHB Air-conditioned Coaches are provided with (A) Cast wheels from RWF (B) Cast wheels from Germany (C) Forged Wheels (D) depends on availability	2
2.13 MRVC EMU rakes have internal panels made of (A) FRP (B) Poly Carbonate (C) LP Sheets (D) ACP	2

2.14 Welding in LHB Coaches without adequate protection may damage: (A) axle bearing (B) WSP (C) Both (A) and (B) (D) none of the above	2
2.15 Following is not a paint system: (A) Alkyd (B) Epoxy (C) Polyurethane (D) Phosphating	2
2.16 Bolster machining of Fiat Bogie is done on (A) 3-axis machine (B) 5-axis machine (C) 7-axis machine (D) MIG machine	2
2.17 ICF is not supplying coaches to: (A) Mumbai Suburban (B) Northern Railway (C) Namma Metro (D) Kolkata Metro	2
2.18 What is MDTS-168? It is a procedure for (A) checking wheel pressing (B) brake disk pressing (C) wheel set imbalance (D) None of these	2
2.19 Following is not a Brake System used in ICF Coaches: (A) Knorr Bremse (B) Faievely (C) Escorts (D) Dyno-Brakes	2
2.20 Following is not a Coach Factory of Indian Railways (A) ICF (B) MCF (C) Latur (D) RCF	2

### Question 3

(20 marks)

There are 10 questions.

Indicate TRUE or FALSE (2 marks for each question)

3.1 CSP-1 and CSP-2 are projects for manufacture of larger number of Metro Coaches.	2
3.2 Schaku Couplers are used in Kolkata Metro.	2
3.3 Conical Springs are used in High Speed LHB Coaches	2
3.4 ISO:50001 is a standard for Energy Conservation	2
3.5 Cast Wheels are provided in LHB Air Conditioned Coaches	2

3.6 ICF is a Carbon negative organisation	2
3.7 WSP is used in SPART Coaches for wheel protection	2
3.8 Hot phosphating is done on springs after final coat of painting	2
3.9 Acetone is used for cleaning of surface of paintless coaches	2
3.10 Permissible limit of undulations on LHB side walls is 2.5 mm	2

**SECTION C – Answer any 4 questions of 15 marks each. If you have answered Question 1 of SECTION A, then answer only 3 from this section.**

4. Describe painting process of LHB coach using paint booth and ovens explaining all stages of surface preparation. How will you check bonding strength of paint? (15 marks)
5. Describe the layout of any of the new Spring Shop or FIAT bogie, bogie assembly shop inclusive of bogie panting. (15 marks)
6. Describe the manufacturing of wheel-set of FIAT bogies. What is procedure for rectification of wheel set unbalance? (15 marks)
7. If you are made AWM of any one of following Shop, how will you maintain staff discipline, improve outturn, consistency in quality and deal with customer complaint, Staff Welfare etc:
  - (A) Side Wall/Roof Assembly
  - (B) Paint Shop
 Please pick up any of the shop and illustrate your answer covering all above aspects of production. (15 marks)
8. What is Wheel Shelling? What are various reasons of Wheel Shelling and what measure you will take to control it? (15 marks)
9. Write short notes on any three: (15 marks)
  - (i) WSP
  - (ii) Welding defects & corrective measure
  - (iii) Passenger amenities in coaches
  - (iv) 5S in ICF
  - (v) Stress Relieving of 3 phase Kolkata Metro bogie frame
  - (vi) Destructive and non-destructive test.

**SECTION – D: All questions carry 10 marks. Answer any 3 questions**

10. List out all the penalties imposed under major charge sheet memo (SF-5). Describe the procedure for imposing major penalty. (10 marks)
11. Write short notes on any TWO: - (10 marks)
- (a) RSP
  - (b) M&P Programme(10 marks)Works Contract
  - (c) Non-Destructive Testing of material
  - (d) Bio-toilet in Indian Railways
12. Illustrate in brief any two of the following: (10 marks)
- (a) Hours of Employment Regulation Act
  - (b) Workmen Compensation Act
  - (c) Factory Act
  - (d) Role of ICF toward Carbon negative energy balance
13. Owner of a garden or sanitation desires to renovate his garden. The shape of a garden is rectangular in the middle and semi-circular at the ends. The maximum length of the garden is 24 metres and width at the centre of garden is 8 metres. Owner wants to remove soil of 0.5 metre depth to provide manure with flowering plants. Unit cost of digging and plantation of flowering plant are Rs.5.25/m<sup>3</sup> and Rs.125/m<sup>2</sup>. Please work out the total cost of renovation of the garden. (10 marks)
14. Describe various type of Tenders being used in ICF for material procurement. What are the benefits of Supply and Installation contracts? (10 marks)
15. What is Production Programme? What are the the major type of coaches which ICF has to manufacture in 2018-19? How are PRs generated? (10 marks)

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