

I/353297/2025



PBC No. 23/2025

**दक्षिण रेलवे Southern Railway**  
**प्रधान मुख्य कार्मिक अधिकारी कार्यालय**  
**Office of the Principal Chief Personnel Officer**  
**प्रधान कार्यालय, कार्मिक विभाग, चेन्नै-600003**  
**Headquarters, Personnel Department, Chennai-600003**

सं/No: P(S)563/I/Bridges/Engg.(IAQ &amp; PRQ)

दिनांक/Dated:27.01.2025

All PHODs/ DRMs/ CWMs/ CEWE/ CAO/ CPM/ PDA/ Dy.CPOs/ Sr.DPOs/Secy to GM,  
 Chairman/RRB/MAS,TVC, Addl.Registrar/RCT/MAS, Secretary/RRT/MAS,  
 Principal MDZTI/TPJ, SRCETC/TBM, ZETTC/AVD,  
 DPOs/SPOs/WPOs/APOs of HQ/Divisions /Workshops/Units.

**विषय/Sub: Syllabus for selection to the post of Junior Engineer/Bridges in  
 Level- 6 of VII CPC against 25% Promotional Quota & 15%  
 Intermediate Apprentices Quota (IAQ)-Civil Engineering Dept. reg.**

\*\*\*\*\*

The Syllabus for selection to the post of Junior Engineer/Bridges-Civil Engineering Department in Level- 6 of VII CPC Pay Matrix against 25% PQ(Promotional quota) & 15% IAQ(Intermediate Apprentices Quota) approved by PCE are enclosed for information, guidance and necessary action.

This has the approval of competent authority.

संलग्नक/Encl: 04 pages

Digitally Signed by  
 Anjanikumar C  
 Date: 28-01-2025 10:06:06  
 Reason: Approved

**(C.ANJANI KUMAR)**  
**Asst. Personnel Officer / IR & Trg**  
**for Principal Chief Personnel Officer**

प्रतिलिपि/Copy to:

The General Secretary/SRMU  
 The General Secretary/DREU  
 The General Secretary/AISCTREA  
 The General Secretary/AIOBCREA  
 The General Secretary/NFIR

IT Section/PB/HQ - to upload in the SR website.

I/353297/2025

**SYLLABUS FOR SELECTION TO THE POST OF JE/BRIDGES AGAINST****25% PROMOTIONAL QUOTA (PRQ)**

1. General working of the Railways and organization of various departments.
2. All establishment matters including extant rules and various acts viz Workmens compensation Act, Hours of Employment Regulations, Discipline and Appeal Rules, Rules regarding leave, salary and passes, witnessing of payment to staff, casual labour, etc.
3. Duties of Bridge Staff,
4. Inspection and maintenance of Bridge and steel structures including prestressed concrete girders which should include greasing of bearings, rivet testing, loose rivet diagram, welding techniques, preparation of steel surface for painting, painting and metallising.
5. Maintenance of Bridge Inspection Register and other registers,
6. Safety First Rules for protection of staff working on bridges and structures and for ensuring safety of traveling public and railway property.
7. General Rules and Subsidiary Rules which should include basics of signaling, train running.
8. Schedule of maximum and minimum dimensions,
9. Track protection rules,
10. Rules for working of Trolleys and Lorries
11. Actions during accidents, breaches and emergencies and restoration of through running
12. Rebuilding of bridges and changing of bed blocks including temporary arrangement
13. Erection of Bridge Girders and Cantilever Hamilton spans and other steel structures
14. Anticorruption, Public relations, Civil duties, Labour Organisation and Leadership, Incentive,
15. Fabrication of bridge girders and other steel structures
16. Office Correspondence, accountal of stores and bridge materials, tools, plant and machinery, stock verification, classification and disposal of surplus material and MAS account.
17. Questions on official language Act to the extent of 10 Marks.
18. Knowledge about IRPSM, BMS and IRWCMS.

\*\*\*\*\*

I/353297/2025

**SYLLABUS FOR SELECTION TO THE POST OF JE/BRIDGES AGAINST 15% INTERMEDIATE APPRENTICES QUOTA (IAQ)**

1. Duties of SSE (Bridge) in charge, JE (Bridge)
2. Inspection Schedule of Steel girders with riveted and welded Construction
3. Inspection schedule for PSC girders in Bridges and ROBs as per manual provisions
4. Camber in steel & PSC girders and its importance
5. Under water inspection in Perennial flow bridges.
6. Different type of girders (Deck, through and Semi-through type) and their suitability.
7. Different type of Bearings – centralized articulated bearings, Roller Rocker Bearings, POT – PTFE bearings, elastomeric bearings and its maintenance and replacement method wherever necessary.
8. Through painting schedule in coastal and non- coastal area
9. Various components of a bridge like foundation, sub-structure, bed – blocks, bearings, super –structure.
10. Type of foundation (Open, pile & well)
11. Danger level, High flood level, Vertical clearance, Free – Board, Scour, Sounding, Drop wall, Curtail wall, flooring, depth of construction, waterway.
12. Schedule and procedure for greasing of bearings of steel Bridge girder.
13. Knowledge of the provisions of IRBM, IS Code and specification of different type of mild steel, Rivets, HSFG bolts, turned bolts, different type of paints applied on bridge girders.
14. Different type of Temporary / Relieving girders and its dimensional aspect and its utilization. Calculation method for temporary arrangements with temporary /relieving girders in terms of span and type for various situations.
15. Painting procedure of steel bridge girder in coastal and non – coastal area and type and specification of various type of paints used for and shelf life of various type paints, procedure of checking DFT of paints.
16. Metalising and epoxy painting of steel girders including surface preparation.
17. Knowledge about Quality Assurance Plan for fabrication works.
18. Different types of welding used in the fabrication works.
19. Different type of electrodes with respect to the type of welding.
20. Fabrication of steel and composite girders as per IRS – B-1/2001 specifications.
21. Procedure involved in regirding/strengthening of corroded members of various types of

I/353297/2025

- girders (Deck Type, Semi – Through, Through Girder) during traffic block.
22. Types of re-girding method (slew-in & Slew-out, Gantry, Crane, Nose launching etc.) and also launching of steel structures like FOB, PF shelters etc.
23. Precautions to be taken before during and after erection of box segments and then approaches in case of subways and rebuilding of bridges by cut – open method.
24. Installation of elastomeric bearings.
25. Inspection of Elastomeric bearings and replacement of the same in Railway Bridges and ROBs.
26. Knowledge of safety items various safety equipments required (b) Precaution and track protection procedure during execution of bridge works on single line / double line sections both works of short duration and long duration (c) Dip lorry working (d) Trolley refuges (e) Infringements of SOD in bridge works.
27. Schedule of dimensions as per latest version, type of ODC and its clearance as per SOD.
28. Different types of Non – Destructive Tests and their applications in Bridges.
29. Tools and equipment for inspection of steel & PSC bridges as per Para 1 1091RBM/RDSO guidelines.
30. Different type of important equipment's which are required for bridge works, welding, riveting etc.
31. Different type of tools & plants which are required during emergency bridge restoration works and riveting works.
32. Knowledge of crane working for bridge works.
33. Track on bridges – guard rail, spacing of steel channel sleepers & H beam sleepers, rail joints on bridges and eccentricity of track with respect to the centre line of girder.
34. Knowledge about different type of Tenders, Earnest Money Deposit, Security Deposit, Performance Guarantee.
35. Knowledge about leave rules, pass rules, HOER, DAR.
36. General Rules and Subsidiary Rules which should include basics of signaling, train running including essentials of Absolute Block System.
37. Actions during accidents, Breaches and Emergencies and Restoration of through Running.
38. Procurement of materials thro' Gem portal.
39. Various consumables required for bridges maintenances and their procurement thro' stock and non-stock indents.

I/353297/2025

40. Duties of various officials for the inspection and maintenance of bridges and Knowledge about Bridge Management System

41. Questions in Official Language to the extent of 10 Marks.

42. Knowledge about IRPSM, BMS and IRWCMS

\*\*\*\*\*