

Syllabus for selection to the post of JE-II in Mech. Dept CRS/Tirupati under 25% promotional quota

TRADE: MILLWRIGHT FITTER

Section - A

1. Organization at various levels and Organization of Mechanical Dept. on SCR, TPTY workshop
2. Duties and responsibility of supervisors in a workshop.
3. Stores matters - Procedure for indenting, drawl, accountable and issue of materials, both stocked and non-stocked items.
4. Establishment matters - Discipline and Appeal Rules, Leave, Pass, Pay and various allowances etc.,
5. IMS, 5S, ISO3834, GreenCo, Factory Act 1948, Safety & Fire Fighting.
6. Questions on official language policy.

Section - B

1. Basic construction of EOT, Forklift, road vehicles.
2. Maintenance schedules for machines, cranes, material handling equipment's like fork lifts and heavy / light road vehicle. Types and construction of compressors, filters coolers.
3. Care and maintenance of air compressors, blowers.
4. Foundation, Erection and dismantling of machinery and heavy loads - Precautions to be observed while doing so.
5. Working care and maintenance of road cranes of different capacities, their special features.
6. Testing of wire ropes, chains etc and their periodicity.
7. Basic structure of a centre lathe, alignments required and test methods.
8. Maintenance practices for roller bearing, gear boxes, belt drives, hydraulic equipment, ETP, Coidal life of M & P

TRADE: PAINTER/TRIMMER

Section - A

1. Organisation at various levels and Organisation of Mechanical Dept. on SCR, TPTY workshop
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4. Establishment matters - Discipline and Appeal Rules, Leave, Pass, Pay and various allowances etc.,
5. ISO 9000 System- Basic definitions, procedures, work instructions, non-conformance reports, internal audit, training requirement, supervisor's responsibility, action on customer feedback.
6. Questions on official language policy.

Section - B

1. Corrosion - reasons, prevention.
2. Painting and its uses.
3. Manufacture of paints and ingredients.
4. Selection of paints for different purposes. Basic IS specification of (paints used in coaches)
5. Various specifications for anti-corrosive paints their applications and advantages *vis-à-vis* disadvantages.
6. Difference between brush painting, spray painting and airless spray painting - their advantages and disadvantages.
7. Types of painting brushes and their selection for different works.
8. Different painting schedules for coaching stock during POH.
9. Preparation of 'upholstery' and estimation of material requirement.
10. PU Painting method.

TRADE: GENERAL FITTER

Section - A

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4. Establishment matters - Discipline and Appeal Rules, Leave, Pass, Pay and various allowances etc.,
5. ISO 9000 System- Basic definitions, procedures, work instructions, non-conformance reports, internal audit, training requirement, supervisor's responsibility, action on customer feedback.
6. Questions on official language policy.

Section - B

1. Dismantling, overhauling and assembling of ICF & LHB - work instructions, inspection and repair of main components, common defects.
2. 'Must change components' during POH repairs and why they are required.
3. Different important dimensions and clearances to be maintained in the bogie after POH.
4. Working of Air Brake system in the coaching stock. Over hauling and testing of distributor valves and other components of air brake. Reasons for brake binding in vacuum brake system and air brake system.
5. Overhauling and testing of various sub-assemblies, shock absorber.
6. The need and methods of adjustment of buffer heights on coaching stock.
7. Draw and buffing bear, their repair practices during POH.
8. WTA components, assembly of wheel sets, overhauling of roller bearings, fitment of axle boxes and allowed variations in dimensions / clearances. Roller bearing defects - causes and prevention.
9. Salient features and difference in construction of ICF and LHB coach bodies. Reasons for corrosion preventive methods to be adopted in workshop for minimizing corrosion.
10. Inspection and repair practices of corrosion coaches as stipulated by RDSO.
11. Difference between various steels used in coach POH

TRADE: CARPENTER/MASON

Section - A

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4. Establishment matters - Discipline and Appeal Rules, Leave, Pass, Pay and various allowances etc.,
5. ISO 9000 System- Basic definitions, procedures, work instructions, non-conformance reports, internal audit, training requirement, supervisor's responsibility, action on customer feed back.
6. Questions on official language policy.

Section - B

1. Types of wood, alternatives to wood, their treatment, storing and utilization in General. Seasoning and grain structure.
2. Types of woods used in different locations in carriage building.
3. Various types of joints and their use in carriage building.
4. Hand tools and special machines / tools used in a Carriage Body Repair Shop.
5. Flooring arrangement in ICF / LHB coaches and repair practices. Current designs and their advantages.
6. Ply woods - method of manufacture, I.S. specification, - advantages and relative costs.
7. Adhesives - types, specifications, application and costs.

TRADE: BLACKSMITHY

Section - A

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4. Establishment matters - Discipline and Appeal Rules, Leave, Pass, Pay and various allowances etc.,
5. ISO 9000 System- Basic definitions, procedures, work instructions, non-conformance reports, internal audit, training requirement, supervisor's responsibility, action on customer feedback..
6. Questions on official language policy.

Section - B

1. Helical springs, their inspection testing and condemnation. Preventive measures. Why welding / flame heating of an axle / spring harmful explain technical reasons.
2. Draw gear assembly, repair practice, testing and documentation.
3. Testing of chains and ropes.

TRADE: WELDER

Section - A

1. Organization at various levels and Organization of Mechanical Dept. on SCR, TPTY workshop
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4. Establishment matters - Discipline and Appeal Rules, Leave, Pass, Pay and various allowances etc.,
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6. Questions on official language policy.

Section - B

1. Various types of welding and cutting techniques.
2. Application of (Mag) CO2 Semi-automatic welding to different types of works on coaches i.e., Welding of Body/side panels, trough floor, buffer seats and sole bars, Advantages over arc welding.
3. Various types of welded joints. Interpretation of drawings for undertaking welding, choosing electrode size for a job.
4. Knowledge of various kinds of electrodes and their usage. Types of coatings. Typical current settings. Types of welding sets.
5. Safety rules while handling gas cylinders, electric arc welding equipment and self-safety.
6. Surface preparation for welding, welding distortion and steps to be taken to control distortion.
7. Defects in arc welding. Identification, prevention.

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SYLLABUS FOR THE SELECTION OF THE POST OF JUNIOR ENGINEER-II

MACHINE SHOP

Section-A

1. Types of machines available in Machine shop & Wheel shop.
 2. Important specifications (capacity, length of the job can be done, accuracy, repeatability, resolution & different operations/processes can be done on the machine) of each capacity.
 3. Safety precautions to be taken while a) starting b) working
 4. Shutting down/stopping of each machine available in machine shop and wheel shop.
 5. Working of wheel lathe, wheel press, AJTB.
 6. Different types of operation and maintenance of tools used in machine operation, wheel lathe, AJTB, wheel press, centre lathe.
 7. All types of measuring tools & gauges used in welding machine operation, wheel lathe, AJTB, wheel press, centre lathe.
 8. Different types of machining operation which is being done in machine shop and wheel shop and their application to rolling stock.
 9. Preventive maintenance schedules (daily and weekly/fortnightly) to be attended on various machines.
 10. Coolants & consumables used in/on various machines.
 11. Tolerance, allowance, fit, surface finish, least count, resolution, accuracy, repeatedly, various symbols/schematic representation for representing tolerance and surface finish on the drawing.
 12. Gauges, calibration, jigs & fixtures.
 13. Down time of the machine, mean time between failure (MTBF), reliability, availability, maintainability of the machines.
 14. Various types of cutting tools their composition and use.
 15. Speeds and feeds for cutting different types of materials and drills to be used on different machines.
 16. Description and illustration of jigs and fixtures, Details of preparation of GO-NO gauges and profile gauges.
 17. Knowledge of assessment of workload and requirement of machinery.
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