RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER
SYLLABUS FOR SCREENING TEST FOR THE POST OF
INSPECTOR OF FACTORIES & BOILERS
(FACTORIES & BOILERS DEPARTMENT)


4. STRENGTH OF MATERIALS: Stress and strain, Thermal stresses, Elastic constants, Shear force and bending moment diagrams, Principal planes and stresses, Mohr’s circle, Theories of failures, Shear and bending stresses, Deflection of beams, Torsion of shafts, Columns and struts, Strain Energy.


Control chart for variables and attributes. Acceptance sampling plans. Introduction to ISO 9000 and ISO 14000. Reliability availability and maintainability. Replacement models and Linear programming Inventory control and queueing theory.


Testing of materials for hardness, strength, toughness, fatigue, creep etc. Standard specification for welded boiler steels, properties requirement for boiler steels, and weldability of materials.

Non-destructive Testing for various welds and joints: Liquid Penetrant Testing, Magnetic Particle Testing, Radiographic Testing, Ultrasonic Testing etc. Fatigue, creep, high temperature cycle impact/abrasion testing, corrosion and wear test.

10. Basic idea of thermal, gas, hydroelectric and nuclear power plants. Carnot, Rankine, Modified Rankine, Reheat and regenerative cycles. Classification and working of various low pressure and high pressure steam generators (boilers). Boiler mountings and accessories. Types of fuels used, basis of fuel combustion, safety standards as per IBR Codes. Steam turbines: Impulse and reaction turbines, velocity diagrams and thermodynamic analysis. Compounding and governing of turbines.

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Pattern of Question Papers:

1. Objective Type Paper
2. Maximum Marks: 180
3. Number of Questions: 180
4. Duration of Paper: Three Hours
5. All Questions carry equal marks
6. Medium of Screening Test: English
7. There will be Negative Marking
   (For every wrong answer, one-third of marks prescribed for that particular question will be deducted.)

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