

## Syllabus for the post of Junior Engineer –Pay Level 6

<p><b>Paper I (General Paper and Post related)</b>          Total No. of Questions – 75 carrying one mark each          Duration: 2 Hours          Type of Questions: MCQ</p>	
<p><b>General Paper Syllabus (25 Questions)</b></p> <p>1. Language Competency – English Grammar, Comprehension etc.</p> <p>2. Aptitude Test: Quantitative, Logical reasoning and Verbal ability</p> <p>3. General Knowledge and Current Affairs: General knowledge about India/World such as Politics, and Current affairs.</p>	<p><b>Post Related Syllabus (50 Questions)</b></p> <p>1. Construction Material- Basic Building Materials, Mortars, Basic Building construction, Finishing, Services, Special Construction, Fire resistance construction.</p> <p>2. Building Construction- Building components, Construction Super Structure, Building Communication &amp; Ventilation, Building Maintenance.</p> <p>3. Fluids Mechanics- Flow and Fluid Properties, Kinematics, Integral Analysis, Differential Analysis, Inviscid Flows, Dimension Analysis, Internal Flows, Prandtl boundary layer equation.</p> <p>4. Applied Mechanics- Law of forces, Moment, Friction, Centre of Gravity, Moment of Inertia, Law of motion, Simple machines.</p> <p>5. Concrete Technology-Ingredients of Cement, Water Cement ratio, Workability, Proportion of Ordinary Cement, Concrete operation, Properties of concrete, Quality Control, Hot weathering concreting, Cold weather concreting, Special type of concrete.</p> <p>6. Water Supply and Wastewater Engineering.-Qty of water, Water treatment, Conveyance of water, Laying of pipe, Building water supply, Sewage system, Laying &amp; construction of sewage, Sewage characteristics, Natural methods of sewage disposal, Sewage treatment, Building drainage, Introduction to sewage water &amp; waste water management.</p> <p>7. Soil and Foundation Engineering- Physical properties of soil, classification &amp; identification of soil, flow of water through soil, Effective stress of soil, Deformation of soil, Shear strength of soil, Compaction, Bearing capacity, Foundation Engineering, Ground improvement technologies.</p> <p>8. Strength of Material-Deformation of Metals,</p>

	<p>Geometrical properties of sections and thin shells, Theory of torsion &amp; springs.</p> <p>9.Public Health Engineering Drawing-Sources, Quantity &amp; quality of water, Conveyance &amp; distribution of water, Domestic sewage &amp; system of sewerages.</p> <p>10.Construction Management- Planning and scheduling, Safety in construction.</p> <p>11.Irrigation Engineering- Water requirement of crops, Hydrological cycle catchment area &amp; run off, Method of irrigation, Dams, Canal, Tube well irrigation, Canal head work &amp; regulatory works, cross drainage work, Rivers training work, Water logging &amp; drainage, ground water recharge.</p> <p>12.Steel Structure Design- Structural Steel and Sections, Riveted Connections, Bolt Connections, Welded connections, Tension Members, Compression Members, Roof Trusses, Column Bases, Beams, Fabrication and erection of steel structures like trusses, columns and girders.</p> <p>13.Quality Surveying and Valuation- Types of estimates, Measurement, Preparation of Detailed and Abstract Estimates from Drawings by following CSR rates, Calculation of quantities of materials, Analysis of Rates, Contractor ship, Preparation of Tender Document based on Common Schedule Rates (CSR), Valuation.</p> <p>14.Repair &amp; Maintenance of Buildings- Need for Maintenance, Agencies Causing Deterioration (Sources, Causes, Effects), Investigation and Diagnosis of Defects, Defects and their root causes, Materials for Repair, maintenance and protection, Remedial Measures for Building Defects.</p> <p>15.Profession related questions (GFR, CCS rules, RTI/CPWD etc)</p>
<p><b>Paper II (Proficiency Test)</b> Total Marks - 25</p>	