

**SYLLABUS FOR COMPUTER BASED TEST (CBT) FOR RECRUITMENT OF
JUNIOR MANAGEMENT TRAINEE (CIVIL)**

A. Subject Knowledge (80%): 160 Nos. of Multiple Choice Questions (MCQs)		
SL. NO.	SUBJECT	TOPICS
1	BUILDING CONSTRUCTION	Overview of Building Components- Construction of Substructure- Construction of Superstructure- Building Communication and Ventilation-Building finishes
2	TRANSPORTATION ENGINEERING	Overview of Highway Engineering- Geometric Design of Highway- Construction of Road Pavements
3	MECHANICS OF MATERIAL	Centre of Gravity and Moment of Inertia- Simple Stresses and Strains- COMPLEX STRESSES AND STRAINS- Shear Force and Bending Moment- Bending and Shear Stresses in beams- Columns
4	GEOTECHNICAL ENGINEERING	Overview of Geology and Geotechnical Engineering- Physical and Index Properties of Soil- Permeability and Seepage- Compaction, Consolidation and stabilization of soil- Shear Strength of Soil- Bearing Capacity of Soil and Foundation
5	BUILDING MATERIAL & CONCRETE TECHNOLOGY	Overview of Construction Materials- Natural Construction Materials- Artificial Construction Materials- Cement, Aggregates, Water and Admixture- Concrete- Concrete Mix Design and Testing of Concrete- Quality Control of Concrete- Special Concrete and Extreme Weather concreting.
6	HYDRAULICS & IRRIGATION ENGINEERING	Fluid Flow Parameters- Flow through pipes- Hydraulic Pumps
7	THEORY OF STRUCTURE	Direct and Bending Stresses in vertical members- Slope and Deflection- Determinate and Indeterminate structures (Fixed and Continuous Beam)- Moment distribution method- Simple trusses
8	ESTIMATING COSTING AND VALUATION	Fundamentals of Estimating and Costing-Detailed Estimate- Estimate for Civil Engineering Works - Rate Analysis
9	CONSTRUCTION MANAGEMENT	Construction industry and management- Site Layout- Planning and scheduling- Construction Contracts and Specifications- Safety in Construction
10	REPAIRS AND MAINTENANCE OF STRUCTURES	Basics of maintenance- Causes and detection of damages- Materials for maintenance and repairs- Maintenance and repair methods for masonry Construction- Maintenance and repair methods for RCC Construction.

11	DESIGN OF STEEL STRUCTURES	Design of connections in steel structures- Design of Steel Tension (Limit State Method)- Design of Steel Compression Members (Limit State Method)- Design of Steel beams (Limit State Method)
12	SURVEYING	Overview and Classification of Survey- Chain Surveying- Compass Traverse Survey- Levelling and Contouring- Measurement of Area and Volume- Theodolite Surveying- Tacheometric surveying and Curve setting- Advanced surveying equipment- Remote sensing, GPS and GIS
13	DESIGN OF RCC STRUCTURE	Design Philosophies, Shear, Bond and Development length in Design of RCC member- Design of axially loaded RCC Column- Design of RC flanged beam- Design of slab- Design of slab- Design of Footing
14	PAVEMENT DESIGN & MAINTENANCE	Basics of pavement Design- Fundamentals of pavement design- Design of Flexible and Concrete pavement- Pavement evaluation- Pavement Maintenance.
15	BUILDING SERVICES AND MAINTENANCE	Overview of Building Services- Modes of vertical communication- Fire Safety- Plumbing Services
16	TENDERING AND ACCOUNTS	Procedure to execute the work- Contracts- Tender and Tender Documents- Accounts- Introduction to Valuation
17	PUBLIC HEALTH ENGINEERING	Sources, Demand and Quality of water- Purification of water- Conveyance and Distribution of water- Domestic sewage and System of Sewerages- Characteristics and treatment of Sewage.
18	PROJECT MANAGEMENT	Concept of A Project-Capital Budgeting Process- Financial Estimates And Projections- Basic Techniques In Capital Budgeting- Project Administration
19	DISASTER MANAGEMENT	Understanding Disaster- Types, Trends, Causes, Consequences and Control of Disasters- Disaster Management Cycle and Framework-Applications of Science and Technology for Disaster Management- Disaster Management in India

B. NUMERICAL / GK & REASONING (10%): 20 NOS. OF MULTIPLE CHOICE QUESTIONS (MCQS)

C. ENGLISH KNOWLEDGE (10%): 20 NOS. OF MULTIPLE CHOICE QUESTIONS (MCQS)

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