Syllabus for the post of
General Duty Medical Officer, E-3 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

1. ANATOMY
2. PHYSIOLOGY,
3. BIOCHEMISTRY
4. PHARMACOLOGY
5. MICROBIOLOGY
6. PATHOLOGY
7. FORENSIC MEDICINE
8. SOCIAL AND PREVENTIVE MEDICINE
9. GENERAL MEDICINE
10. DERMATOLOGY AND VENEREOLOGY
11. GENERAL SURGERY
12. ENT
13. OPHTHALMOLOGY
14. ORTHOPEDICS
15. ANESTHESIA
16. RADIO DIAGNOSIS
17. RADIOTHERAPY
18. PAEDIATRICS
19. OBSTETRICS AND GYNAECOLGOY
20. PSYCHIATRY

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Junior Estates Officer, E-1 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

1. Constitution of India
2. Civil Procedure Code 1908,
3. Specific Relief Act 1963
4. Limitation Act 1963
5. Transfer of Property Act 1882,
6. Indian Contract Act 1872,
7. RFCTLARR Act 2013
8. Stamps & Registration Act 1908
9. Indian Easements Act 1882,
10. Hindu Succession Act 1956
11. Indian Penal Code 1860
12. Code of Criminal Procedure 1973
13. Indian Evidence Act 1872
14. Negotiable Instruments Act 1881
15. Right to Information Act 2005
16. Telangana Public Premises Act 1968
17. Forest (Conservation) Act 1980
18. Mines & Minerals(Development & Regulation) Act,1957
19. The Telangana Municipalities Act, 2019 (Only Chapter-III i.e. Muncipal Revenue)
20. The Telangana Panchayat Raj Act,2018 (Only Chapter-III i.e. Taxation and Finance)

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Junior Forest Officer, E-1 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

DEGREE LEVEL SYLLABUS OF AGRICULTURE (INTRODUCTION TO AGRICULTURE, AGRONOMY, PLANT BREEDING & GENETICS, SOIL SCIENCE, ENTOMOLOGY, PATHOLOGY, SEED SOIL TECHNOLOGY), HORTICULTURE (INTRODUCTION TO HORTICULTURE, FLORICULTURE, PAMOLOGY, OLERICULTURE, ENTOMOLOGY, PATHOLOGY, POST HARVEST TECHNOLOGY) AND FORESTRY (INTRODUCTION TO FORESTRY, FOREST GENETICS AND TREE BREEDING, NURSERY TECHNIQUES, CLASSIFICATION OF FORESTS, ECOLOGY, FOREST MENSURATION. TIMBER MANAGEMENT, WILD LIFE MANAGEMENT, SOIL MOISTURE CONSERVATION TECHNIQUES

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Management Trainee(Civil),E-2 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

1. Building Materials And Construction:

Bricks– Types of Bricks, Indian standard classification, properties; Stones – Types of stones, classification, properties, dressing and polishing of stones; Methods of Quarrying; Cement – Different grades and types of cement, properties & IS specifications; Aggregates – coarse and fine aggregate, properties and IS specifications;

Cement Mortar – Proportions of cement mortar for various applications; Concrete –Constituents of Concrete, Different grades of Concrete, mix proportioning using IS Code, Properties of fresh and hardened Concrete; Admixtures – Types of Admixtures.

2. Strength of Materials & Theory of Structures:

Strength of Materials: Simple stresses and strains, elastic constants and relationship between them; Compound bars; Temperature stresses; Shear forces and bending moment diagrams for beams; Principal stresses and Mohr's circle of stress, Theory of bending and bending stresses; Shear stress distribution; Theory of torsion; Springs; Deflections of beams; Thin and thick cylinders;; Analysis of trusses, Betti-Maxwell theorem; Shear centre and unsymmetrical bending.

Theory of Structures: Direct and bending stresses; Columns and struts; Strain energy method; Moving loads and influence lines; Arches and suspension bridges; Static and kinematic indeterminacy; Moment distribution, Slope deflection, and Kani's methods applied to continuous beams and portal frames; matrix methods of analysis.

3. Cement Concrete and Steel Structures:

Concrete Structures: Materials, permissible stresses and IS Specifications; Working stress methods; Limit State Method - Stress Blocks parameters, design of Beams, Slabs, Columns and Footing; Design for Shear and Torsion; Design of Retaining Walls, Water tanks, and T-Beam Slab bridges; Yield line theory.

Steel Structures: Properties of steel sections, permissible stresses, IS Specifications; Riveted and welded joints and connections; Design of simple and compound Beams and Columns, Column bases, Roof trusses, Plate and Gantry Girders; Plate Girder Lattice Girder Railway bridges, and Bearings. Plastic analysis.

Pre-Stressed Concrete: Basic concepts, material for pre-stressing, losses in Pre-stress, classification of pre-stressing system; Analysis of PSC Sections.

4. Fluid Mechanics and Hydraulics:

Fluid Properties; Measurement of Pressure - Manometers; Fluid Kinematics – Classification of Fluids, Stream function and Velocity potential, significance and use of Flownets, Fluid dynamics - Continuity equation, Bernoulli's equations and Impulse momentum equation; Laminar and Turbulent flow through pipes – significance of Reynolds number, Hagen – Poiseuille's equation, Darcy – Weisbach equation, Friction factor, Water hammer concepts; Compressible flow – Bernoulli's equation for Isothermal and Adiabatic conditions, Mach Number, Mach cone, stagnation properties; Steady uniform flow through open channels; Gradually varied flows – significance of Froude number, classification and computation of Flow profiles, Hydraulic jump, Surges; Boundary layer – Laminar and Turbulent Boundary layer, Boundary layer thickness, rough and smooth Boundaries, Boundary layer separation; Dimensional analysis and similarity laws; Hydraulic Turbines – classification, Velocity triangles, principles and design of reaction and impulse turbines; Centrifugal pumps – specific speed, work done and efficiency, characteristic curves.

5. Hydrology and Water Resources Engineering:

Hydrological cycle; Rainfall – types and measurement, network design; Infiltration - - index; Runoff – process, factors and determination of runoff, dependable yield; Floods –flood hydrograph, computation of flood peak using rational formula, unit hydrograph method and Gumbel's extreme value methods; Groundwater – types of aquifer and properties, Darcy's law, specific yield, steady radial flow to wells in confined and unconfined aquifers; Irrigation – types and advantages, soil water plant relationship, consumptive use, duty, delta, base period, crops and their water requirements; Single and multipurpose projects; Dams – classification, forces and design of Gravity dam and Earth dam; Spillways – types, energy dissipation, stilling basin, Appurtenances; Canals alignment, Kennedy's and Lacey's theories, lining of Canals; Weirs – components, design of vertical drop and sloping glacis weir; Seepage forces – Bligh's Theory, Khosla's theory; Canal falls – types and design principles; Cross drainage works –classification and design principles of aqueducts; Hydropower principles – classification and components of Hydroelectric power plants.

6. Environmental Engineering:

Water supply – objectives, rate of demand, population forecasts; Analysis of water –classification, design of coagulation, sedimentation, filtration, disinfection and softening processes; Methods of layout of distribution pipes – Hardy cross

method; Waste water engineering – systems of sewerage, hydraulic formulae and design of sewers, BOD, COD, self purification of natural streams, methods of sewage disposal; Treatment of sewage – principles and design of grit chamber, sedimentation tanks, trickling filters, activated sludge process, sludge digestion tanks, septic tanks; Municipal solid waste –characteristics, collection and transportation of solid wastes; Air Pollution – types and sources of pollutants, air quality standards; Noise pollution – Impacts and permissible limits, measurement and control of noise pollution.

7. Transportation Engineering:

Highway Classification as per IRC; Highway alignment; Engineering Surveys; Geometric Design; Cross sectional elements of road; Gradient; Grade compensation; Traffic Surveys – speed, Volumes, origin and destination; Intersection – at grade and grade separated; Channelization; Rotary intersection; signal design – webstar method, traffic signs, pavement marking; Parking studies, accidental studies, pavement types, Factors considered for pavement design, flexible and rigid pavements design concepts.

Railway Engineering: Permanent way, rails, sleepers, ballast; Creep, coning of wheel, rail fixtures and fastenings, super elevation, cant deficiency, curves, turnout; Points and crossings.

Airport Engineering: Selection of site of Airport, runway orientation and design, wind rose diagram, basic run way length, correction to basic runway length.

8. Soil Mechanics and Foundation Engineering:

Soil Mechanics: Physical properties of soils, Classification and identification, Permeability, Capillarity, Seepage, Compaction, Consolidation, Shear Strength, Mohr's circle, Earth pressure, Slope stability;

Foundation Engineering: Site investigations, stress distribution in soils, Bearing capacity,Settlement analysis, Types of Foundation, Pile foundations, Foundations on expansivesoils; swelling and its preventions; Coffer dams, Caissons, Dewatering, Bracing forexcavations, Newmark charts, machine foundations.

Engineering Geology: Mineralogy, Structural Geology, Groundwater Exploration methods; Engineering Geology applications for Tunnels, Dams and Reservoirs; Geological hazards and preventive measures.

9. Estimation, Costing and Construction Management:

Abstract estimate: Detailed estimate – centerline, long & short wall method, various items of Civil Engineering works as per Indian Standard, General Specifications – Earth Work, Brick / Stone Masonry in Cement Mortar, RCC,

Plastering in Cement Mortar, Floor finishes, white wash, colour wash; Standard schedule of rates, lead and lift, preparation of lead statement; Computation of earth work – Mid-ordinate, Mean Sectional area, Trepezoidal method, Prismoidal Rule; Approximate estimate – Plinth area and cubic rate estimate.

10. Construction Management:

Types of construction projects, Tendering and construction contracts, project planning and network analysis – PERT and CPM.

11. Surveying:

Principle and classification of surveying, chain surveying; Compass surveying; Levelling and contouring; Theodolite surveying; curves; Introduction and Fundamental concepts of electronic measuring instruments – EDM, Total station, components of GPS and basics of GIS.

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Management Trainee(F&A), E-2 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

1. ACCOUNTING INCLUDING STANDARDS
2. AUDITING INCLUDING STANDARDS
3. COSTING INCLUDING STANDARDS
4. ADVANCED FINANCIAL MANAGEMENT
5. DIRECT TAXES
6. INDIRECT TAXES INCLUDING CUSTOMS
7. COMMERCIAL LAWS
8. COST AND PERFORMANCE MANAGEMENT

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Management Trainee(Hydrogeologist), E-2 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

GEOLOGY

1. General Geology and Geomorphology
2. Structural Geology, Stratigraphy, Palaeontology
3. Mineralogy and Geochemistry
4. Petrology (Igneous, Metamorphic and Sedimentology),
5. Environmental Geology
6. Indian Mineral Deposits and Mineral Economics
7. Ore Genesis, Mineral Exploration, Geology of Fuels
8. Engineering Geology

HYDROGEOLOGY

1. Origin, Occurrence, and Distribution of water
2. Groundwater Hydraulics
3. Groundwater Exploration and Water Well Construction,
4. Groundwater Qualify

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Management Trainee(IE),E-2 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

1. WORK STUDY & ERGONOMICS

Work study - Methods study - Work Measurement- Principles of predetermined motion time systems (PMTS) & MTM

Job evaluation and incentive scheme

Ergonomics - Value engineering.

2. OPERATIONS RESEARCH

Linear programming – transportation and assignment models - Integer programming - Markovian queuing models - Simulation – Game theory.

Geometric programming (G.P) - Dynamic programming (D.P) - Stochastic Programming (S.P) - Non-traditional optimization techniques

3. PRODUCTION PLANNING AND CONTROL

Concept of operation planning and control – Types of operation and process systems – Forecasting - Aggregate planning - Master production scheduling - Material requirement planning, MRP-II and ERP – Job shop Scheduling, sequencing – Line of Balance. Capacity planning and control - Just-in-time - Pull and push system, Kanban systems.

Logistics, distribution, and supply chain management

4. PROBABILITY & STATISTICS

Probability and sampling theorems - Mean, median, mode and standard deviation, Linear regression, Random variables

Binomial distribution, Poisson distribution-Normal distribution, exponential distributions, Uniform distribution, Weibull distribution.

Population and samples - estimation- interval estimation.

Statistical hypothesis -testing of hypothesis – ANOVA- Time series -Markov process and Markov chains - Principle of least squares –curve fitting – simple regression and correlation.

Sampling Distribution – Estimation

5. HUMAN RESOURCE DEVELOPMENT & MANAGEMENT

Personnel Management - Manpower planning - Manpower inventory - Manpower forecasting - Manpower skills analysis and recruitment - Selection process, Psychological testing - Interviewing techniques – Transfer - Promotion - Induction placement and exit interview - wage and salary administration.

Training - Performance appraisal - Industrial relations

Human Factor Management: Behavioural models – Motivation – Leadership - Communication and Counselling - Management by objectives

6. FINANCIAL MANAGEMENT AND ECONOMICS

Functions of Finance - Capital budgeting - Working capital management — Cost accounting - Tools of financial analysis — financial ratio analysis, Funds flow analysis and financial forecasting

Profit planning and control – Breakeven analysis – Budgets and budgetary control – Estimating and Costing– mensuration.

7. PROJECT MANAGEMENT

Basics of Project Management - The Project Life Cycle – Project Identification and Selection - Organisational Structure

Project Performance Measurement and Evaluation -Project Execution and Control

Scheduling techniques – Gantt chart, CPM, PERT and GERT.

8. MATERIALS MANAGEMENT

Materials Management - Purchasing function –
Inventory Management & Inventory control systems
Stores Management - Material handling

9. MANAGEMENT INFORMATION SYSTEM

Concepts of MIS - Concept of Data Base Data base management systems - Tools for modelling and analysis of processes

10. FACILITY PLANNING AND DESIGN

Facilities Planning - Strategic facilities planning.

Material Handling and plant layout - Production Line balancing.

Computer Aided Layout - Quantitative Approaches to facilities Planning - Warehouse layout models - Storage models - Probabilistic models

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Management Trainee(Mining), E-2 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

Mine Management, Legislation and General Safety.	The Mines Act, 1952; Mines Rules 1955, Mines Rescue Rules, 1985, Mine Vocational Training Rules, 1966, Coal Mine Regulation, 2017 and other rules and legislation as applicable to coal mines. Provisions of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 applicable to mines.
Methods of coal Mining, Drilling Technology.	Opening of coal seams, Methods of boring, boring through disturbed strata; bore hole survey; interpretation of geological maps. Methods of shaft sinking: mechanized sinking, in ordinary and water logged grounds and other special methods; shaft supports, temporary and permanent, mechanised stone drifting etc. Underground Mining Methods: Choice of methods of mining coal seams and factors (depth, seam thickness, inclination, etc.) affecting the same; statutory provisions. Board and pillar method: statutory provisions, mechanized loaders, continuous miners etc., depillaring and applicable statutory provision; pillar extraction with caving and stowing; mechanization in depillaring; local fall and main fall; indications of roof weighting; air blasts and precautions against the same; Multi-section and continuous working; liquidation of developed pillars. Longwall mining: longwall face-advancing and retreating

	faces; support ststem for longwall gate roads; powered support; face transfer, operation of shearer and plough; Thick seam mining: Board and pillar and longwall methods in multi-section; multi-slice methods; inclined slicing; horizontal slicing and cross slicing in ascending and descending orders; under-winning methods; sublevel caving; and descending shield methods; hydraulic mining; special methods of thick seam mining. Other special methods of mining: Wide stall method; method of mining thin seams; underground coal gasification, coal bed methane/ coal mine methane etc.
Mine Ventilation, Mine Fires, Explosions, Inundations, Rescue and Recovery.	**Mine Gases:** Generation, Properties and Physiological Effects, Detection of Mine Gases, Methanometers and Multi gas Detectors, Flame Safety Lamps. Mine fires and Hazards due to extraction of developed pillars, its mitigation, Inundation, Explosions in mines, risk of opencast mining near water bodies, rivers, and mitigation measures against risk from inrush of water Hazards due to Extreme weather condition in opencast mines and its mitigation Occupational hazards in surface mining and precautions. Rescue and recovery; investigations and reports; fire fighting plan; rescue equipment; resuscitation and reviving apparatus; selection and training for rescue work. Heat and humidity: Sources of heat in mines; geothermal gradient; effects of heat and humidity; heat transfer in board and pillar and long wall workings; methods of calculation of heat flow and temperature rise; heat load due to various machines; air cooling and conditioning. Air flow in mines: Laws of air flow; resistance of airways; resistance and splitting problems; equipment orifice; flow control devices; permissible air velocities.

	Natural ventilation: Seasonal variations; calculation of natural ventilation pressure.
Explosives and Blasting Techniques.	Types of explosives, explosive being used in underground mines and opencast mines, detonators and accessories, Transport and storage of explosive, solid blasting. Blasting patterns
Rock Mechanics and Ground control.	Pressure arc theory, subsidence, types of roof, testing of roof, supporting materials, Types of support, mechanised support, Roof bolting, cable bolting, RMR.
Safety Management and Environment Management in Mines.	Airborne dust: Generation, dispersion, measurement and control; suppression and treatment of coal dust; properties of stone dust; sampling and analysis of coal dust. Mine closure plan: Reclamation etc. Failure of dumps and benches, Dump stability managements etc
Mining Machinery, Fundamentals of Electrical and Mechanical Engineering,	Material handling equipment in mines: Types, construction and operation; Safety devices; maintenance and calculations for rope haulages; locomotives, conveyors, systems, rope-ways, communication equipment, man riding systems; in-pit crushers, feeder breaker etc., use of diesel equipments in underground coal mines, free steered vehicles. Pumps: Types, Characteristics, motor power, capacity , laying of water mains, dealing with acid water; slurry, drainage; lodgements, storage, designs and layout of dams, sumps, pumping problems. Function and operation of blast hole drills, rippers, scrapers, shovels; draglines, dumpers, road graders, dozers, wheel loaders; Bucket Wheel Excavators; spreaders; surface continuous miners, rock breakers and their maintenance aspects, water-trucks, In-pit crushing conveying (IPCC) Generation, transmission and utilization of Power, Steam and compressed air: Air compressor and auxiliary equipment; air turbines and air engines; efficiency of power, steam system; safety aspects. Maintenance systems, Mechanical ventilation, fans in series

	and parallel, reversal of air flow; fan drift, diffuser and evasee; booster and auxiliary fans; standards of ventilation; ventilation calculation.
Fundamentals of Mining Geology.	Nature and occurrence of coal seams; description of Indian coalfields; features of coalfields; Mohr's scale of hardness
Fundamentals of Mine surveying.	Dip and strike problems: outcrop problems; borehole surveying and calculations. Types of plans and their preparation, care, storage and preservation: legislation concerning mine plans and sections; duties and responsibilities of surveyors. Application of computers in mine surveying and preparation of plans
Fundamentals of IT.	Use of IT in mining industry, software being used in mine planning and mine surveying. OITDS, GPS based Vehicle Monitoring systems

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Management Trainee (Personnel), E-2 Grade (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

Syllabus	Topics
1. Human Resource Management	a) Manpower planning / HR Planning b) Job analysis - Job design, Job description and Job specification c) Recruitment and selection, placement and induction d) Wage and salary administration e) Training and development f) Performance appraisal g) Job evaluation h) Organization design, Line and Staff relationship i) Strategic HRM j) International HRM k) Competence mapping l) Business Process outsourcing m) HR Matrix n) HRIS (Human Resource Information System) o) CSR
2. **Labour Legislation** (Including labour codes)	a) The Minimum Wages Act, 1948 b) The Payment of wages Act, 1936 c) Payment of Bonus Act, 1936 d) The Factories Act, 1948 e) Mines ACT, 1952 f) The Industrial employment (Standing orders) Act, 1946 g) Trade Unions Act, 1926 h) Industrial Disputes Act, 1947 i) The Payment of gratuty Act, 1972 j) The Employee Provident Fund And Miscellaniuos Provisons Act, 1952 k) The Contract Labour (Regulation and Abolition) Act, 1970 l) The Employees' State Insurance Act, 1948 m) The Maternity Benefit Act, 1961 n) The Employees' Compensation Act, 1923 o) The Coal Mines Provident Fund And Miscellaniuos Provisons Act, 1948 p) The Coal Mines Pension Scheme, 1998

3. **Organisational Behaviour**	a) Organization b) Organizational behaviour c) Group dynamics d) Team dynamics e) Quality circles f) Organizational change g) Organizational development h) Organizational effectiveness i) Organization design j) Classical, Neo calssical and modern theories of organizational structure k) Understanding and managing individual behaviour l) Leadership m) Motivation n) Communication o) Johari window p) Conflict management
4. Industrial Relations: Trade Unions and Employers' associations	a) Industrial relations concept, scope, approaches and importance b) Industrial disputes c) Collective bargaining d) Grievence handling and disciplinary action e) Employee discipline f) Misconduct g) Industrial relations and the new economic reforms **<u>Trade Unions:</u>** a) Meaning, objectives, functions, theories, structure and importance b) Trade Union movement in India c) Workmen participation in management d) Labour welfare and social security measures

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
3. QUANTITATIVE APTITUDE & NUMERICAL ABILITY
4. TEST OF REASONING
5. COMPUTER BASICS

Syllabus for the post of
Sub-Overseer Trainee(Civil),T&S Grade-C (External)
Employment Notification No. 01/2024

PART-I (Subject related to the post)

1. Surveying:

Fundamental concepts; Classification of Surveys; Chain Surveying; Compass Surveying; Levelling and Contouring; Theodolite Surveying; Tacheometry; Curves.

2. Construction Materials & Practice :

Properties and uses of construction materials - Stones, Bricks, Tiles, Sand, Cement, Timber, Glass, Asbestos, Paints, Distempers, Enamels and Varnishes; Preparation of Cement mortar for various works. Classification of foundations, construction of spread footing and well foundation; Stone and Brick masonry - types and principles of construction; Doors and Windows - types, fittings and fastenings, types and functions of Lintels, Sunshades and Roofs, Flooring - Construction and types of material; Types of Stairs; Scaffolding; Types of Plastering, Pointing, Painting and White / Colour Wash.

3. Engineering Mechanics and Strength of Materials :

Centre of Gravity and Moment of Inertia; Simple stresses and strains, Hooke's law – stress strain diagram, working strength, elastic constants, Poisson's ratio, Relationship between elastic constants, compound rods, temperature stresses, strain energy, proof resilience, impact loading; Shear force and bending moment diagrams for simply supported, over hanging and cantilever beams, relation between intensity of loading, shear force and bending moment; Theory of simple bending, modulus of section, moment of resistance, distribution of shear stress in rectangular, circular and I-Sections; Deflection in cantilever and simply supported beams subjected to simple loading; Columns and struts - Euler's and Rankine's formulae, Slenderness ratio, simple built-up columns; Analysis of dams and retaining walls; Simple plane and pin-jointed trusses, Stresses by method of joints and method of sections.

4. Hydraulics :

Properties of fluids, fluid pressure and its measurement; Types of flows, energies in fluid motion, Bernoulli's theorem and its applications – venture metre, pitot tube; Orifice and mouthpiece; Notches and weirs; Flow through pipes, hydraulic gradient line and total energy line, laminar and turbulent flow in pipes - Reynolds number, measurement of velocity; open channels; Water turbines – classification, centrifugal and reciprocating pumps

5. Quantity Surveying:

Abstract estimate, detailed estimate - centreline and long & short wall method, various items of Civil Engineering works as per Indian Standards; General Specifications - earth work, brick / stone masonry in cement mortar, RCC, plastering in cement mortar, Floor finishes with ceramic tiles and marbles, white washing, colour washing; Standard schedule of rates, lead and lift, Computation of earth work - Midordinate, Mean Sectional area, Trepezoidal method, Prismoidal Rule;

6. Design of Structures (RCC and Steel) :

RCC structures: principles and concepts of working stress method and limit state method, loads and permissible stresses, IS specifications, analysis and design - rectangular beam, slab, T-beam, column, footing and stair case.

Steel Structures: Properties of steel sections, loads and permissible stresses, IS specifications, Analysis and design - welded joints, beam, column, column base, tension member; Design of roof truss.

7. Water supply and Sanitary Engineering:

Water supply scheme; Sources of water; Conveyance of water – pipes, joints and laying; Testing of water, drinking water standards; Treatment of water, Distribution of water, Water supply connections to building.

Quantity of sewage, surface drains, laying of sewers, sewer appurtenances, Characteristics of domestic and industrial sewage – BOD, COD; Sewage treatment, Septic tank and soak pit; House drainage arrangements in buildings, solid waste-collection and disposal.

8. Transportation Engineering:

Alignment of roads - plain and hilly terrain, surveys; Cross section of road structure, width of pavement, Camber, Gradient, Super elevation, Transition curves, horizontal and vertical alignment; Pavement marking, traffic signs, traffic islands

Types of soil, classification of soil - Textural, IS Classification, physical properties - plasticity, cohesion, consolidation, compaction, permeability, compressibility, soil moisture content, specific gravity, density; Bearing capacity of soil.

9. Irrigation Engineering:

Definitions, duty, delta, base period, rainfall and its measurement, factors affecting runoff, methods of computing maximum flood discharge; Classification of head works, component parts of a weir and barrage, factors influencing selection of site - reservoirs and dams; Classification of canals, canal lining, cross drainage works; Soil erosion, water logging, soil water plant relationship; Necessity of irrigation - advantages and disadvantages, irrigation methods.

PART-II (General Studies)

1. GENERAL KNOWLEDGE
2. GENERAL ENGLISH
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5. COMPUTER BASICS