

उप अभियंता (सिविल/लोडस्वा0यां0) परीक्षा हेतु पाठ्यक्रम

Syllabus

Section-A

General Knowledge, Reasoning & Mathematic & Knowledge of Computer

(30 प्रश्न 30 अंक)

General Knowledge :- (15 अंक)

1. History & Freedom movement of India, Indian Heritage, Art & Culture etc.
2. Geography of India : Physical Features, Climate, Rivers, Natural vegetation & wildlife, Population, Mineral Resources & Industries etc.
3. Constitution of India, Political system and Indian Administrative system etc.
4. Current events – National & International etc.
5. Knowledge of Chhattisgarh, geographical location, natural resources, industries, education, administrative structure, history & culture of Chhattisgarh, ancient history, freedom struggle, major archaeological tourist centres of the state etc.

Knowledge of Computer :- (05 अंक)

1. MS Office, Spread sheets, word Processing etc.
2. Concept of hardware and software, operating system, windows etc.
3. Data analysis and chart presentation etc.
4. Multimedia/graphic presentation etc.
5. Basic of internet and cloud computing etc.

Mathematics & Reasoning :- (10 अंक)

1. Number System, Fractions, Decimals, BODMAS, Surdes & Indices, HCF & LCM etc.
2. Percentage, Simple & Compound Interest, profit & loss, Ratio & Proportion, speed, Time & Distance, Time & Work, mixtures & allegations, Averages, Pipes & Cistern etc.
3. Area & perimeter of 2D figures, Surface area & volume of 3d figures, height & distance, triangles & their properties, circle and their chords etc.
4. Verbal Reasoning : Analogy, Classification, coding & decoding, blood relation, direction & distance, arithmetic reasoning, series etc.
5. Non Verbal Reasoning : cube & dice, clocks & calendar, mirror and water image, embedded figures, paper folding and cutting etc.



SYLLABUS FOR SUB. ENGINEER CIVIL/PHE

Section-B Civil Engineering

Total Questions-70

Total Marks-70

1. **Surveying:-** Linear Measurement, Chain Surveying, Compass Surveying, Plant table surveying, Levelling, Contouring, Study of toposheets, Theodolite Survey, Tacheometric Surveys, Circular Curves, Electronic Theodolite, Electromagnetic Distance Measurement (EDM)
2. **Building Materials**

Bricks:- Types, Indian Standard Classification, absorption, saturation, factor, strength in masonry, influence of mortar strength on masonry strength.
Cement:- Compounds of different type, setting times, strength.
Cement Mortar:- ingredients, proportions, water, demand, mortars for plastering and masonry.
Concrete:- importance of W/C Ratio, Strength, ingredients, including admixtures, workability, testing for strength, elasticity, non-destructive testing, mix design methods.
3. **Soil Mechanics:-** Properties of soil, Classification and interrelationship: Compaction behavior, methods of compaction, permeability and seepage, flow nets, Inverted filters, compressibility and consolidation, shearing resistance, stresses and failure, soil testing in laboratory and insitu.
4. **Estimating & Costing:-** Estimate of Timber Structure, Estimate of R.C.C. Structure, Estimate of Steel Structure, Estimate of Culvers & Bridges, Estimate of Water supply and sanitary fitting. Rate analysis, Estimate for building Estimate for Road works.
5. **PHE Services:-** Sources of Water, Quantity of Water, Pumps, Pipe and Pipe specials, System of sanitation and sewerage, sewer laying, waste water collection system, quantity of sewage, characteristics of sewage, sewage treatment processes, House water supply and Sanitation.

6. **Construction Management:-** Organisation of civil works department, its structure & working, important formats of measurements, payment & bills, Gantt Chart, CPM network. Concreting Equipment, Weight Batcher, Mixtures, vibrator, plant, concrete pump. Cranes, hoists, lifting equipment Earth work Equipment. Power shovel, hoe, dozer, dumper, trailers and rollers foot sheep foot rollers pumps.
7. **Structural Engineering:-** Stress and strain, Bending moments and Shear Forces in simply supported, cantilever, fixed, and continuous beams; Slopes and deflection in cantilever and simply supported beams, Stresses in beams, axially loaded column Euler's formula, RCC Design (Limit State Method IS 456:2000)- Design of singly and doubly reinforced RCC beams. Design of retaining Wall and Weir
8. **Design of Steel Structures:-** Principles of working stress method. Design of connections, Simple member, Built-up section and frames, Design of Industrial foofs. @CGAEJE
9. **Transportation Engineering:-** Highway Alignment and Surveys. Highway geometrics, Pavement materials, Highway construction, Drainage of Roads, Bridge-Classification, Site Investigation, Bridge Substructure, Bridge Superstructure, Waterways.
10. **Water Resource Engineering:-** Classification of reservoir based on purpose, investigation for reservoir planning. Engineering survey's area elevation curve, storage elevation curve, Geological investigation, Hydrological investigation, factors affecting selection of site for reservoir: Zones of storages and various water levels, storage capacity and yield of reservoir. Dams- various types of dam, Factors governing the selection of type of dam, Factors for selection of site for a dam. Earthen Dams, Gravity Dams, Spillway, Diversion Headwork, Canal Irrigation System- Canals, canal outlets, Canal Regulation works, Cross Drainage Works (Only Components and their functions), Canal lining and New irrigation techniques such as Drip Irrigation and Sprinkler Irrigation, lift irrigation.

