

**SYLLABUS FOR DEPARTMENTAL EXAMINATION IN ENGINEERING FOR  
JUNIOR ENGINEER (CIVIL)  
GROUP 'A' (BUILDING WORKS)  
(50 Marks)**

1. Description, care and use of Survey Instruments, Preparation of plan, Elevation, Sectional drawings and reading & writing of design and Architectural drawings.
2. Building material commonly used, their characteristics, quality and properties, Bricks, Stone masonry, coarse and fine Aggregate, Re-inforcement Steel, Cement, Timber etc and common test for quality control.
3. Analysis of Rates, Estimating quantities of material & Transport preparation of estimates/DPR's Method of measurement.
4. Different Types of foundation. Soil bearing capacities of various types of soil common test for quality control.
5. Basic theory and properties of RC, Curtailment of steel re-inforcement , Bond length, Stress-Compressive, tensile, shear, Neutral axis, Stress Strain diagram etc
6. Sanitary and internal water supply works and fittings, Septic tank.
7. Water Cement Ration, Slump test, Gradation of aggregate, curing and compaction of concrete, formwork
8. Standard Specifications for various items of works
9. Roofs and trusses, lean to roofs, King post and Queen post trusses, composites steel trusses, design of truss sections to tension, compression and shear details of joints and supports.

N.B. Group 'A' : 3(three) questions will have to be answered by the examinees.

**GROUP 'B' (SURVEY, ROAD WORKS ETC)  
(50 Marks)**

1. Description, use and care of various types of Survey Instruments, Hill road Survey - different stages of survey.
2. Preparation of DPR Estimating and measurement of road works
3. Road geometry, Camber, Super elevation, Gradient, Side Slope, Curves, Classification of Roads.
4. Road Construction materials, physical properties, Common tests for quality control
5. Stone masonry works, Construction Procedures for Retaining Wall, size of stone etc
6. Pavement works, soil bearing capacity, compaction, gradation of material, typical section. Various grade of Bitumen, Scope of GSB, WBM and WMM and material used.
7. Types of Bridges Culverts and drains selection of Bridge site
8. Common Construction machineries.

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**SYLLABUS FOR DEPARTMENTAL EXAMINATION IN ENGINEERING FOR JUNIOR ENGINEER (ELECTRICAL/MECHANICAL) GROUP 'A' (ELECTRICAL)**

**(50 Marks)**

1. Detail study of internal electrification system used in Public Works Department:-
  - a) ILLUMINATION: Laws of Illumination, Simple calculation of illumination requirement and selection of lighting fixtures
  - b) ELECTRICAL PLAN DRAWING: Simple electrical plan drawing for internal electrification
  - c) CIRCUIT DIAGRAM: Simple circuit diagram/drawing for internal electrification
  - d) LOAD CALCULATION: Simple load calculation only for internal electrification
  - e) EARTHING: Different types of earthing and its importance and their construction
  - f) WIRINGS: Different types of internal electrification wirings including LT Panel Board, Distribution Board, Switch Board, Panel Board DB and point wirings
  - g) ESTIMATING AND COSTING: Simple estimation and costing for internal electrification
2. Maintenance and fault diagnosis and repairing of internal electrification
3. General principles and Periodic Maintenance of Diesel Generating set, Transformer and other electrical machines
4. Electrical measuring Instrument :General Principles and uses
5. Air Conditioning and refrigeration and Lift/Elevator: general Principles and Periodic Maintenance.

**GROUP 'B' (MECHANICAL)**

**50 Marks**

1. Detail Study of various types of Machines and Equipments used in Public Works Department : its uses, functions & maintenance
2. Fundamental of Diesel & Petrol Engine
  - a) Operation, advantages and disadvantages
  - b) Periodic/Daily maintenance
  - c) Cooling and lubrication system
  - d) Troubles shooting and fault diagnosis
3. Preparation of Survey Report, Repair Estimate. Maintenance of Log book & History sheet
4. Welding, Soldering & Brazing – Different methods and techniques and its applications
5. Measuring Tools & instrument used in machine shops – General study its uses & applications

(29) (8)

**SYLLABUS FOR DEPARTMENTAL EXAMINATION IN ENGINEERING FOR  
OVERSEER/TRAINED SA/DIPLOMA SA/UNTRAINED SA  
GROUP 'A' (BUILDING WORKS)**

**(50 Marks)**

1. Drawing & measuring equipments.
  2. Preparing Plan, elevation and sections.
  3. Common building materials, their characteristics and use of bricks , iron and steel , lime, cements, timbers, asbestos, asphalt etc lime cements and surkhi mortars, lime and cement concrete, plain and reinforced concrete, safe bearing capacity for ordinary soils.
  4. Basic principles of RCC structures arches.
  5. Types of foundation and various types of soils.
  6. Doors, windows, lintels, relieving jack arches.
  7. Interpretation of drawings(arch & structural)
  8. Various Steel sections
  9. Roofs and roof trusses, lean to roofs, King post and Queen post trusses, Composite steel trusses
  10. Roof covering and fixing country and factory tiles roofing, corrugated GI and asbestos sheet roofing, measure to ensure water tight joint in ridges, angles and valleys.
  11. Schedule of rules and analysis of rates
  12. Estimating and costing
  13. Basic water supply and sanitary works
- N.B. Group 'A' : 3(three) questions will have to be answered by the examinees.

**GROUP 'B' (SURVEY, ROAD WORKS ETC)**

**(50 Marks)**

1. Definition, use and adjustment of survey instruments.
2. Survey of road alignment, selection of bridge site.
3. Road Geometry and various classes of roads.
4. Elementary soil mechanic, Strength of soil, important Laboratory and Field Tests.
5. Various types of pavement works including construction procedure.
6. Drainage works.
7. Analysis of rates for road works, RCC works, building works, retaining wall and culverts, simple mensuration problem.

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(25) (5)

**SYLLABUS FOR DEPARTMENTAL EXAMINATION IN ACCOUNTS FOR  
JE/OVERSEER/ TRAINED SA/DIPLOMA SA/UNTRAINED SA /MECHANICAL  
GRADE - I & ELECTRICIAN GRADE - I**

**(100 Marks)**

The examination is mainly intended to test the familiarity of the official with accounting procedures involved in his day to day working and secondarily intended to ascertain procedure in the Sub-Division are the Divisional Officers in the various returns, bills etc which they submit in incorporating in the monthly accounts of the Divisions.

The question that will be set to assess the knowledge of the candidates will be mainly on the basis of rules and provisions are provided in CPWD Accounts Code and CPWD Manual.

1. Maintenance of Imprest Accounts.
2. Maintenance of I & P Accounts, Site Accounts, Proforma Accounts of Vehicles, RMS Accounts and Stock Account ie Materials required and obtained for general use of the Departments.
3. Maintenance of Materials at Site Accounts.
4. Maintenance of Muster Rolls of Labour Employed Departmentally.
5. Procedure for execution of works and preparation of works abstracted.