



**SYLLABI FOR DEPARTMENTAL EXAMINATION FOR  
OVERSEER  
UNDER PUBLIC WORKS DEPARTMENT**

**ENGINEERING PAPER**

**Duration – 3 hours**

**(CIVIL ENGINEERING)**

**PART – A (50 Marks)**

1. Surveying for building works (*10 Marks*)
  - Unit of Measurements
  - Care and uses of Survey Instruments
  - Preparation of Building Plan, Elevation and Sectional drawings
  - Reading and writing of Architectural Drawings.
  
2. Building Materials. (*10 Marks*)
  - Natural Building Materials
  - Brick, cement, Timber, Lime, Lime mortar, Lime Concrete, Plastic, Paints & Varnishes,
  - Damp Proof Material.
  - Characteristics
  - Common tests for quality control
  
3. Building Construction. (*10 Marks*)
  - Types of Foundations in buildings, depth of foundation
  - Soil bearing capacity of various types of soil, common test for quality control.
  - Buildings Byelaws
  - Form work for Concrete structures
  
4. Analysis of Rates, Estimating quantities of materials, Transportation cost, Preparation of Estimate/ DPR, methods of measurement for building works. (*5 Marks*)
  
5. RCC Structures. (*10 Marks*)
  - Basic theory and property of RCC
  - Bond length, Anchorage length, Development length & splicing
  - Permissible stress in Concrete & Steel Reinforcement
  - Stresses: Compressive, Tensile, Shear, Stress & Strain relation
  - Water cement Ratio, Slump test, Gradation of Aggregate curing, compaction of concrete and form work.
  
6. Standard Specification for various items of Building Works. (*5 Marks*)

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## **PART – B (50 MARKS)**

1. Surveying (**9 Marks**)
  - Description, use and care of various types of survey instrument for Road work
  - Contour survey
  - Levelling
  - Hill road survey
  - Different stages of road survey.
  - Preparation of DRP Estimate
  - Measurement of Road works.
2. Geometric Design of Highways (**9 Marks**)
  - Formation width of Different class of road
  - Right of way
  - Height of structures
  - Extra Widening of pavement
  - Width of pavement
  - Camber
  - Circular curve
  - Gradient
  - Transition curve
  - Vertical curve
  - Passing place.
3. Construction of Road Formation (**5 Marks**)
  - Jungle clearance
  - Tree cutting
  - Design of cut slope
  - Earth work
  - Disposal of excavation materials.
4. Road Construction Materials (**5 Marks**)
  - Pavement materials & Physical Properties
  - Common test for quality control.
5. Bridge, Culvert and Drainage (**5 Marks**)
  - Survey for bridge site
  - Bridge site selection & requirement
  - Importance Road side drain
  - Cath water drains
  - Causeway
  - Culvert.
6. Protection work (**8 Marks**)
  - Types of retaining walls
  - Construction Procedure
  - Size of stone
7. Pavement (**9 Marks**)
  - Types of pavement
  - Composition of Rigid Pavements
  - Joints in Rigid pavement, Dowel Bars
  - Traffic count, and wheel load survey
  - Components of Flexible pavement
  - Preparation of subgrade layer
  - Stages of Pavement Construction
  - Temperature requirement for bituminous construction
  - Rolling of Pavement layers

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## **(ELECTRICAL ENGINEERING)**

### **PART – A (50 Marks)**

1. Detail Study of Internal Electrification System used in Public Works Department **(30 Marks)**
  - Illumination; Laws of illumination, simple calculation of illumination, requirement and selection
  - Electrical Plan and Drawing; simple electrical plan drawing for internal electrification
  - Circuit Diagram; Simple circuit diagram, drawing for internal electrification
  - Earthing; different type, importance and construction
  - Wiring; Different types of internal electrification wiring, LT Panel Board, Distribution Board, Switch Board, Panel Board DB, Point wiring
2. Estimating and costing **(10 Marks)**
  - Simple Estimation and costing for internal wiring
3. Maintenance - Fault diagnosis **(10 Marks)**
  - Repairing of Internal Electrification

### **PART – B (50 MARKS)**

1. Generator Set & Transformer **(10 Marks)**
  - General Principle
  - Periodic Maintenance
  - Installation of Transformer and maintenance
2. Electrical Measuring Instruments **(10 Marks)**
  - General Principle
  - Uses
3. Air Conditioning and Refrigeration **(15 Marks)**
  - General principle
  - Periodic Maintenance
4. Lift/Elevator **(15 Marks)**
  - General principle
  - Periodic Maintenance

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**(MECHANICAL ENGINEERING)**

**PART – A (50 Marks)**

1. Detail Study of Various type of Machine and Equipment used in Public Works Department *(25 Marks)*
  - Uses
  - Functions
  - Maintenance
  
2. Fundamental of Diesel and Petrol Engines *(25 Marks)*
  - Operation
  - Advantages and disadvantages
  - Periodic and daily maintenance
  - Cooling and lubrication system
  - Trouble shooting and fault diagnosis.

**PART – B (50 MARKS)**

1. Survey Report - Preparation of survey report *(20 Marks)*
  - Repair Estimate
  - Maintenance of Log Book
  - History sheet.
  
2. Welding, Soldering and Brazing *(10 Marks)*
  - Different Methods - Technique
  - Application
  
3. Measuring Tools & Instruments Used in Machine Shops *(20 Marks)*
  - General studies
  - Uses
  - Applications

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