GROUP-55-Work Supervisor

(Level- Matric+ ITI Certificate in Building Construction/Maintenance)

1) General awareness, Reasoning, Mathematics, Science, History including Haryana related history, current affairs, literature, Geography, Civics, Environment, Culture etc.- (**Weightage 20%)**

2) Computer terminology, Fundamentals, word software, excel software, Power point, internet, web browsing, Communication, emails, downloading and uploading data on websites etc**. -**

(Weightage 10%)

3) Subject related syllabus- **(Weightage 70%)**

Importance of safety and general precautions:

What is a related instruction, System including store procedures, professional prospects etc. Drawing instruments, equipment's materials their use, care & maintenance, safety precautions. Introduction to BIS code of practice and architectural drawings. Geometrical drawing- definition, construction of plain geometrical figures

Principles, representation and construction of different types of scales

Graphic scales, recommended scales for drawing with reference to IS codes. Choice of scales. Types of lines and different conventional representation as per IS.

Definition and types of projections.

Methods of projection as per IS. Projection of points, lines, planes and solids. Sections of solid and their true shapes. Principle of Isometric projection, difference between Isometric drawing & Isometric projection.

Building materials:

Clay products like Bricks, tiles, terracotta, earthenware; stoneware, stone, cement, lime, sand, timber, glass, paints, texture etc. Introduction: Sequence of construction of a building. Names of different parts of building. Bricks masonry – principles of construction of bonds, Stone masonry, terms used, composite masonry and strength of walls. Timber: Structure Indian timber uses,

Tools and equipment used. Scaffolding.

Foundation: -

Purpose, causes of failure of foundation, bearing capacity of soils, dead load, live load, wind load and Seismic load. Examination of ground. Types of foundation. Drawing of footing foundation, setting out of building on ground excavation, shoring & simple machine foundations. Simple design of foundation. Damp proof course, Sources and effects of dampness, method of prevention of dampness in building

Surveying –

Their classifications, plane survey, geodetic survey, purpose of survey– instruments used in survey. Nature of surveyor's work – importance of system. Common terms and definitions used in surveying conventional signs used in Field book and survey maps. Linear measuring instrument used by surveyors, their descriptions and uses. Types of chain and chain survey, compass survey, Levelling & Contouring. Field book types- methods of entry of check lines – its importance. Locations of details – types of off-sets and their limit-town survey traversing with chain procedure in Plotting chain lines skeleton, its check and filling in details. Introduction to theodolite, temporary adjustment of theodolite– procedure in setting up – method of measurement of horizontal & vertical angles and height Instruments and accessories- their uses and description level book.

Differential;

levelling application of chain and levelling to building construction. Plotting, preparation of contour computing earth work by spot level and contours. Setting out work.

Road construction materials-

Stone, Bitumen, Bituminous materials etc. Road: Introduction to roads, general principles of alignment. Classification and construction of different types of roads

Bridge: -

Introduction to bridge, component parts of bridge. Classification of culverts (IRC) Bridges types, location of a bridge, tunnels.

Types of mortar & concrete proportion and mixing.

Plastering and pointing. White washing & distempering. Types of ground floor and methods of constructing granolithic, mosaic brick tiles etc. floors with finishing and polishing

Arches &lintel-

Technical terms, forms of brick and stone, form work and cantering. Market forms and sizes.

Carpentry joints terms

Classification of joints. Door: Parts of door, location, sizes, and types Windows and ventilators: including steel windows and ventilators fixtures and fastening used in doors. Windows and ventilators.

Roof:

Pitched roof types, roof covering, and component parts of roof. Theory of trussing, king and queen post trusses. Steel Truss

STAIRS:

Terms, forms materials, planning and designing of stairs. Details of construction.

Residential building.

Principles of planning. Orientation local building bye-laws including IS code, type of residential building, rooms services, Utilities which constitute as dwelling house. Estimating. Method and find out quantities for a single storied residential building.

Flooring:

Different types of floors, materials used in floor and construction process. Modern finishing works including false ceiling etc. with interior decoration. Painting, Protective and decorative coatings

Protective material Paint –

Uses, different types, Ingredients. Varnish - uses, different types, ingredients. Plastering–purpose of plastering, proportion, curing, purpose of curing, plastering method

Use of plumbing tools Materials used in plumbing –

Ferrous, non-ferrous and non- metal, Different types pipes and fittings Joints - GI, PVC, AC, SW, CI, lead, steel - Properties and use in plumbing work Method of cutting and joining Elbow joint, socket joint, Tee joint, reducing elbow joint, floor trap joint Protection of lining of different types of pipes for Piped Water Supply System (PWSS) Repairing and Spares of different hand pumps`

Water supply Sources of water:

Water requirements, Purification Storage of water, Distribution of water

Public Water Supply:

Sources of Water, Intake Jetty water demand and standard for different area. Mineral matter, Hardness, Causes of Scale formation &their Removal. Water Purification: Treatment plants for different groundwater contaminants, Treatment plants for surface water , Storage of water -Overhead Reservoirs, Ground Level reservoirs

Pumps-its importance for agricultural &industrial applications.

Classification of pumps, its prime movers, parts and operation safety. Classification of reciprocating pump, construction operation. Installation technique of reciprocating pump. Tools and equipment required & procedure. Submersible pumpconstruction, operation and selection of appropriate type. Procedure to recondition, install and test of submersible pumps. Causes of failures and remedial measures

Types of Tube-well /River Lift Irrigation:

Tube-well Assembly, Diameter and thickness of pipe, Measurement of discharge, static water level, pumping water level, Draw down size of gravel/coarse sand in respect of Tube-well.

Laying of pipe line for distribution of water to field:

List of materials for Tube Well/River Lift Irrigation Scheme, drawing section of trenches for laying pipe, various pipe joints, spout chamber, Alignment of pipe line for distribution of water.

Preliminary Hydrology:

R& D gauges, velocity, Clinching & Measurements. Irrigation PracticesTypes of Irrigation, GCA, CCA, crop & base period, Irrigation efficiency, duty, delta River racking(River meat, Spurs, gorge, marginal embank),Embankment (Construction& Failure), Different types of Hydraulic structures(DAM, Barrage& Weir, Aqueduct, Siphon, Super passage, Inlet and outlet etc.

Types of cement, relevant IS codes comparative study of their physical & chemical properties:

Significance of different properties • Hydration of cement • Selection of cement • Storage of cement • Factors affecting strength of cement • Rejection of cement AGGREGATE • Classification (IS: 383) • Grading • Characteristics (grading, fineness modules) • Bulking of fine aggregate • Deleterious substances • Factors affecting strength of concrete

Water requirement for hydration & workability

• Effect of impurities present in water admixture •Water proofing and permeability reducing admixture Construction chemicals •Interpretation of specifications • Meaning of terms • Functions • Classification (IS : 4082) •Water proofing and permeability reducing admixture Classification & specifications Related calculations of concrete Classification of concrete according to grade, weight & methods of mixing Ready mixed concrete, self-levelling concrete, nominal mixed and design mixed concrete Properties of concrete Workability & consistency Segregation Bleeding Strength Durability, Impermeability, Volume stability Form work & bar bending

General and detailed Specification. Estimating and costing:

Need and importance Types of estimate Items of work Measurement of items Calculation of quantities of various items, estimate of one room building by centre line method and separate wall method

Annual Repair:

White washing, Flooring Replacing of glass, Re-polishing of floor Removal of stains from terrace and floor, Special repair, Foundation failure Strengthening of foundation Rectification of leaking roof Repair to expansion joint.

Construction equipment:

• Classification • Selection of equipment • Sources of equipment • Excavation equipment • Tractor • Bull dozer • Excavator • Hoisting equipment • Crane • Pulley • Cable way • Conveying equipment • Belt conveyor • Rope way • Pumping equipment • Drilling equipment • Types of drills • Classification of drill • Drill bits • Selection of drilling pattern.

Important Note: The Weightage as mentioned against the syllabus is tentative & may vary.