

CIVIL ENGINEERING
CLASS–XII
ELECTIVE
CONSTRUCTION TECHNOLOGY (797)
THEORY

Time: 2.5 Hours

Marks: 50

1. Building Construction

10

- Site Selection for construction, various components of a building (sub structure and super structure with elaboration of technical terms).
- Foundations: Need and function of foundation, different types of foundations and their uses.
- Masonry: General principles of bricks masonry, types of bonds.
- Floors: Types of flooring and their uses.
- Stairs: Need and types of stairs.
- Doors and Windows, Purpose of each and their classification.

2. Concrete Technology

10

- Definition of concrete, different types of concrete and their uses, Ingredients of Concrete.
- Preparation of concrete:
Batching, Mixing, Transportation, Placement, Compaction, Curing, Finishing.
- Properties of Concrete:
Properties in plastic stage: workability, segregation, bleeding.
- Properties of hardened concrete: strength, durability.
- Introduction to standard concrete mixes.

3. Formwork, Scaffolding and Steel Fixing

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- Introduction and purpose of formwork.
- Timber joints, cutting and drilling of plywood.
- Shuttering for beam, column and slab floor.
- Codal provisions on formwork.
- Introduction and purpose of scaffolding, Component parts, Types of scaffolding.
- Types of ties and their uses.
- Making and placing reinforcement for slab & foundation.
- Codal provision on steel fixing.

4. Services & Utilities

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- Introduction to plumbing, plumbing tools and their uses.
- Water distribution system, material for service pipes, service connection, valves.
- Aim and principles of house drainage, Pipes and traps.
- Sanitary fittings.
- House wiring: Types of wires used, tools used for house wiring, Circuit diagram for tube light, bulb, fan and switches & sockets.
- Fire protection: Fire hazards, characteristics of fire resisting materials, general fire safety requirements for buildings, fire alarms, fire extinguishing equipment.

5. Construction Work Supervision

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- Roles and responsibilities of construction work supervisor.
- Record keeping: Muster roll, measurement book, register for material receipt and issue, logbook for construction equipment.
- Site Registers: site diary, site order book, inspection register, cement register, steel register, register for approval of other materials, material requisition and issue records.
- Register for scrap material, POL records, register for construction equipment.
- Check list (Dos and Don'ts) for construction work supervision.

PRACTICAL

Time: 2.5 Hours

Marks: 50

1. Laying of bricks in different layer using English bond. 5
2. Laying of bricks in different layer using Flemish bond. 5
3. To determine workability of concrete by slump test. 5
4. Test for compressive strength of concrete cubes. 5
5. To make T-joint and dove tail joint in timber. 5
6. Cutting of plywood in different patterns. 5
7. Drilling in plywood. 5
8. T- joint in service pipes. 5
9. Wiring from MCB to switch board having a three pin socket, switches for fan and tube light. 5
10. Making entries in the measurement book for small piece of construction work. 5