

**DETAILED SYLLABUS FOR THE POST OF TRACER IN SOIL  
SURVEY AND SOIL CONSERVATION**

**(CATEGORY NO. 600/2023)**

**TOTAL : 100 MARKS**

**MODULE: 1 BASIC ENGINEERING DRAWING (8marks)**

Drawing instruments, Uses, Layout of drawing sheet, Types of lines, Lettering, Dimensioning, Types of Scales, Plane geometrical construction, Conic section, Projection.

**MODULE:2 BUILDING MATERIALS AND CONSTRUCTION (12marks)**

Properties of engineering materials, Building Stones, bricks , lime, timber, tiles , sand, cement mortar and concrete, Admixtures, Ferrous metals, Non ferrous metals, Glass, Protective materials .

**MODULE:3 BUILDING CONSTRUCTION (20 marks)**

Stone masonry, Brick masonry, composite masonry, Foundation, Bearing capacity of soil, Scaffolding shoring and underpinning, Damp proofing water proofing and termite proofing, Arches, lintels, stairs, RCC -introduction, uses materials proportions Formwork including bending of bars and construction reference of BIS code, RCC lintel, column, slab, beam, footings, Method of mixing concrete, slump test Steel structures – Common forms of steel sections, Tension and compression member, Types of riveted joints, welded joints, Doors and windows, Roofs, Floors and floorings

**MODULE:4 BUILDING DRAWING AND ESTIMATING (12marks)**

Building rules and byelaws, Provision of safety for buildings , types of estimate, Sanctions, , Rules and methods of measurements of works, Rate analysis, labour, materials, schedule of rates, Valuation- terms

**MODULE:5 IRRIGATION ENGINEERING (6marks)**

Terms used in irrigation, Water requirements of crops, Wiers and barrages, storage and diversion headwork, Reservoir, Dams, Canals, Cross drainage works, Hydroelectric projects and Turbines

**MODULE:6 SURVEYING (14 marks)**

Chain surveying- principles-instruments used , Filed book plotting, compass surveying, Planetable surveying, Levelling and contouring, Curves, Theodolite Area and volume calculation

Introduction to total station ,Types of total station , Measurement with total station ,

Charecteristic and features of Total station , Global positioning systems

**MODULE:7 AutoCAD**

**( 8marks)**

Inroduction , Basic commands, Tool bars, Function keys and shortcut keys, 2D drafting, 3D modelling-shortcut keys, knowledge of layout and printing drawing

**MODULE:8 UNITS OF MEASUREMENTS AND APPLIED MECHANICS ( 6 marks)**

Units of measurements, Simple machines, work, power, energy, simple stress, strain, Mensuration, simple trigonometry.

**MODULE:9 TRANSPORTATION ENGINNERING**

**(8 marks)**

Road, Development of road, General principles of alignment, Classification and construction of different types of roads, Railway engineering-Type of rail sections , Permanent way, Sleepers Ballast, Fixtures and fastenings, Creep - Screw spikes - Washers Rail sections, signalling Points and crossings, Bridge engineering- Foundation of bridges, Super structure of bridges and classification of bridges.

**MODULE:10 PUBLIC HEALTH AND SANITATION**

**(6 marks)**

Pipes and pipe joints for underground drainage ,Quality of water, Sources of water, Treatment and conveyance of water, Distribution of water, Systems of sanitation, house drainage, collection and conveyance of sewage, Septic tank, water and sewage treatment plant, Sewer appurtenances, waste water disposal.

**NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper**