

SYLLABUS FOR DRAFTMAN-II EXAMINATION UNDER
PUBLIC WORKS DEPARTMENT-2018

GENERAL ENGLISH (100 marks)

- (a) Essay Writing (Conventional).....20 Marks
- (b) Idioms & Phrases (Objective Type).....16 Marks
- (c) Comprehension of given passages (Objective Type).....16 Marks
- (d) Grammar (Objective Type)16 Marks
Parts of Speech : Nouns, Adjective, Verb, Adverb, Preposition, etc.
- (e) Composition (Objective Type)16 Marks
 i)Analysis of complex and compound sentences
 ii)Transformation of sentences
 iii)Synthesis of sentences
- (f) Correct usage and vocabularies (Objective Type)16 Marks

TECHNICAL PAPER – I (150 marks)

ARCHITECTURAL DESIGN

- Basic Design- Elements and principles, comparison of designed and non-designed objects;
- Standard dimensions and space requirements, visual textures and tonal variations, dimensional relationships;
- Importance of scale in architecture – human scale and monumental scale; Interrelation of form, function and circulation in architectural design;
- Elementary principles of Architectural Design on the basis of structure, function and aesthetics;
- Design of small structures and objects of interest with respect to form and construction ;

- Building details – functional use of materials.
- Barrier free design – Standard dimension, space standards, accessibility, choice of materials and arrangement of spaces.
- National Building Code norms.

CLIMATOLOGY

- Necessity of studying climatology in architecture;
- Concept of thermal comfort-different factors determining thermal comfort of human being in a built environment;
- Thermal conductivity of building materials and their impact in thermal comfort;
- Effect of sun in architecture – orientation of sun, azimuth and altitude;
- Light – visual efficiency, daylighting, source and factor concept, design variables;
- Energy efficient building design.

HISTORY OF ARCHITECTURE

- Factors influencing Architecture of an era;
- Development of Architecture from caves and huts of prehistoric era;
- Noted temples, palaces and civic buildings;
- Egyptian Architecture;
- Greek Architecture;
- Roman Architecture;
- Indian Architecture;
- Development of Contemporary Architecture

LANDSCAPE DESIGN

- Introduction to landscape architecture;
- Landscape conservation, reclamation and landscaping of derelict lands;
- Principles of landscape architecture;
- Relationship between man, building and landscape;
- Garden design – principles of composition, visual aspect of plan arrangement, Mughal gardens, French gardens, English gardens;
- Types of parks, park-systems and park care
- Materials of landscape architecture – plants, water, land, rock, nature-work, man-made elements, outdoor furniture, etc;

- Guidelines for landscaping of specific areas – residential, commercial, recreational, plaza and squares, signage;
- Technical aspects of construction and maintenance

TOWN PLANNING

- Principles and necessities of town planning;
- Site planning principles;
- Road and street planning;
- Concept and importance of Housing;
- Public buildings;
- Road systems;
- Building Bye-Laws and Development control rules;
- Planning concepts by utopians – Patrick Geddes, Sir Ebenezer Howard, Garden City concept.

MODERN ARCHITECTURE

- Rise of Modern Architecture;
- Modern materials and new techniques;
- Works of architects – Mies van der Rohe, Le Corbusier, Frank Lloyd Wright, Louis Sullivan, Peter Behrens, Louis Kahn, Walter Gropius;
- Art Nouveau, Bauhaus, Arts and Crafts.

TECHNICAL PAPER – II (150 marks)

BUILDING MATERIALS AND CONSTRUCTION

- Building materials:
- Sources, general and special characteristics;
- Composition, physical and chemical properties;
- Advantages and disadvantages of use of various materials, sustainability of use;
- Stones, bricks, clay, lime, cement, timber, cement concrete, steel, glass;
- Insulation materials, sealants and adhesives, protective and decorative coatings, water proofing and damp proofing materials.
- Building construction:

- Components of buildings – technical terms, definitions and pictorial representation;
- Foundations – definition, purpose, types;
- Brick masonry, masonry bonds – English bond, Flemish bond, Raking bond;
- Stair – technical terms, classifications;
- Doors and windows – types of doors, classifications of windows;
- Roofs and roof coverings – technical terms, classification, types, GI sheet roof covering.

BUILDING SERVICES

- Electrical services-types, wiring systems, types of earthing, main and distribution boards;
- Fire safety- Fire fighting equipments in buildings, fire detection system, fire alarm system, regulations and requirements, dry and wet risers, automatic sprinklers;
- Lighting –renewable energy sources, importance of light in architecture, perception of light and color
- Mechanical equipment for vertical transportation, physically handicapped mechanical safety systems;
- Ventilation – Natural or mechanical, principles of natural ventilation, Airconditioning – control of quality, quantity, temperature and humidity;
- Acoustics;
- Intelligent buildings.

STRUCTURES

- Equilibrium of forces, concurrent forces, composition and resolution of forces;
- Maxwell's diagram, moment of inertia, section modulus;
- Simple stress and strain , elastic constants, simple theory of bending;
- Bending moment and shear forces in statically determinate beams, B.M and S.F. diagrams for statically determinate beams, bending stresses, moment of resistance
- Theorem of three moments
- Concept of structural stability, retaining wall, moving loads and influence lines.

ENVIRONMENTAL POLLUTION AND CONTROL

- Quantity of water – purpose of demand, factors affecting rate of demand;
- Sources of water and their characteristics, rainfall and runoff;
- Quality of water – meaning of pure water, maintenance of purity of water, water quality analysis;

- Conveyance of water ;
- Distribution System – general considerations, methods of distribution, methods of layout of pipe distribution;
- Pipe appurtenances – Necessity,.
- Purpose and principles of sanitation;
- Collection and conveyance of sewage – methods of carrying and collecting sewage;
- Design and Construction of sewers;
- Sewer appurtenances;
- House drainage – principles, types of traps;
- Treatment and disposal of sewage.

SURVEY THEORY

- General principles, classifications, purpose of survey, common terms and definitions used;
- Surveying instruments and their adjustments;
- Chain surveying
- Compass surveying;
- Plane table surveying and levelling
- Survey using digital theodolite and total station;
- Surveying of a site for computing earthwork.

ESTIMATION & COSTING AND BUILDING SPECIFICATIONS

- Glossary of technical terms;
- Stages of detailed estimate;
- Analysis of rates;
- Detailed specifications for various items of works – earthwork, stone, cement, brick, steel, plastering, pointing, flooring, painting, doors and windows, glazing, false ceiling, GCI sheet roofing, AC sheet roofing.

APTITUDE TEST

20 Marks

- **Numerical And Figurework Tests: (4 Marks)**

These tests are reflections of fluency with numbers and calculations. It shows how easily a person can think with numbers. The subject will be given a series of numbers. His/Her task is to see how the numbers go together to form a relationship with each other. He/She has to choose a number which would go next in the series.

- **Verbal Analysis And Vocabulary Tests: (6 Marks)**

These tests measure the degree of comfort and fluency with the English language. These tests will measure how a person will reason with words. The subject will be given questions with alternative answers, that will reflect his/her command of the rule and use of English language.

- **Visual And Spatial/3-D Ability Tests: (4 Marks)**

These tests are used to measure perceptual speed and acuity. The subject will be shown pictures where he/she is asked to identify the odd one out; or which comes next in the sequence or explores how easily he/she can see and turn around objects in space.

- **Abstract Reasoning Tests: (6 Marks)**

This test measures the ability to analyse information and solve problems on a complex, thought based level. It measures a person's ability to quickly identify patterns, logical rules and trends in new data, integrate this information, and apply it to solve problems.