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 Llyod 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.