

**M.E.CIVIL**  
**ENTRANCE EXAMINATION SYLLABUS**

**SECTION A**

**Applied Mechanics:**

Resultant and equilibrium of forces in plane, moment of inertia, virtual work, kinematics and kinetics of particles and rigid body.

**Strength of Materials:**

Stresses-strains, principal stresses, bending moment, shear forces and torsion theory, deflection of structures, columns, strain energy, arches, bending and shear stresses.

**Structural Analysis:**

Analysis of beams, frames and trusses, slope-deflection method, moment distribution method, Influence line, stiffness method, flexibility method.

**Steel Structures:**

Tension and compression member, design of welded and riveted connection, columns, footings, trusses, steel beams, plate and gantry girder.

**Design of RCC Structures (Working Stress and Limit State):**

Design of footings, columns, slabs and beams.

Design of water tanks, retaining walls, building frames and staircase.

**Concrete Technology:**

Properties of concrete, tests on concrete, factors affecting strength of concrete, water-cement ratio, mix design, admixtures, special concretes.

**Pre-stressed Concrete:**

Principals of pre-stressing, material used and their properties, systems and losses in pre-stressing

## **SECTION B**

- 1) Nature and importance of management.- Contribution by Taylor, Fayol, & Mayo. General principles of management, functions and qualities of manager. Inventory control EOQ, ABC & Safety stocks. Linear Programming, Transportation & Assignment problem.
  
- 2) Introduction to CPM-PERT, Forward and Backward Pass, Calculation of EST, EFT, LST, LFT & Floats.
  
- 3) Engineering Economics-Time value of money-cash flow diagrams-present and future worth-annual Cost-equivalence, payback-rate of return and yield.
  
- 4) Excavation and Transportation of earth & rock, Tractor, scrapers, rippers, shovels, trucks etc. dragline, Clamshells etc. safety considerations and efficiencies of such machineries and economics and Selection of equipment.
  
- 5) Rock excavation-drills, jackhammers, compressors, blasting. Explosives fuses misfire safety Precautions, dewatering, surface pumping, electro-osmosis method.
  
- 6) Concrete-batching and mixing-central plants, transit mixers, curing, finishing and Q. C. tests. Shotcrete methods, underwater concreting, concreting for prestressed concrete, prestressing yards, tools and equipments