SSC JE Structural Engineering Detailed Syllabus

Theory of structures:

Elasticity constants, types of beams – determinate and indeterminate, bending moment and shear force diagrams of simply supported, cantilever and over hanging beams. Moment of area and moment of inertia for rectangular & circular sections, bending moment and shear stress for a tee, channel and compound sections, chimneys, dams and retaining walls, eccentric loads, slope deflection of simply supported and cantilever beams, critical load and columns, Torsion of circular section.

Concrete Technology:

Properties, Advantages and uses of concrete, cement aggregates, the importance of water quality, water cement ratio, workability, mix design, storage, batching, mixing, placement, compaction, finishing and curing of concrete, quality control of concrete, hot weather and cold weather concreting, repair and maintenance of concrete structures.

RCC Design:

RCC beams-flexural strength, shear strength, bond strength, the design of singly reinforced and double reinforced beams, cantilever beams. T-beams, lintels. One way and two-way slabs, isolated footings. Reinforced brickworks, columns, staircases, retaining wall, water tanks (RCC design questions may be based on both Limit State and Working Stress methods).

Steel Design:

Steel design and construction of steel columns, beams roof trusses plate girders. 14