

END TERM TEST

SUMMER SEMESTER - JUNE 2016

B.Tech 5th Semester

COURSE CODE: 10B11CE512

MAX. MARKS: 50

COURSE NAME: Design of Concrete Structures

COURSE CREDITS: 04

MAX. TIME: 2 Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Use of IS456:2000 is allowed.

- Q1.** What is T beam? What do you understand by the term economical depth of T beam (5)
- Q2.** An Isolated simply supported T beam has flange width of 2400mm and Flange thickness of 120mm. The effective span of the beam is 3.6m. The effective depth of the beam is 580mm and its width is 300mm. It is reinforced with 8-20mm dia Fe415 bars. Determine the moment of resistance of the section. Use M20 concrete. (5)
- Q3.** Determine the limiting moment of resistance and limiting area of steel for a reinforced concrete T Beam having flange width of 1600mm, effective depth of 350mm and thickness of flange is 100mm. The width of web is 250mm. Use M20/Fe500. (5)
- Q4.** A simply supported slab has a clear span 2.5m and is supported on beams 230mm width. Design the slab if the beam is carrying a live load of 5kN/m^2 . Use M20/Fe415. (7)
- Q5.** Design a cantilever slab for an overhang of 1.2m. The imposed load on the slab consists of 1kN/m^2 and weight of floor finish is 800N/m^2 . Use M20/Fe415 (7)
- Q6.** An RCC short column of size 400mm×500mm is carrying a factored load of 3000kN. Design the column assuming $e_{\min} < 0.05D$. Use M20/Fe415 (5)
- Q7.** Design a circular column of dia 400mm subjected to a load of 1200kN. The column is having spiral ties. The column is 3m long and is effectively held in position at both ends but not restrained against rotation. Use M25/Fe415 (7)
- Q8.** Differentiate between short column and long column giving IS specifications (4)
- Q9.** What are interactive curves? Explain the failure of column subjected to compression and uniaxial bending with the help of an interaction curve? (5)