

BE - VIIth Semester Examination, 2018

Subject: Advanced structural Design (RCC)

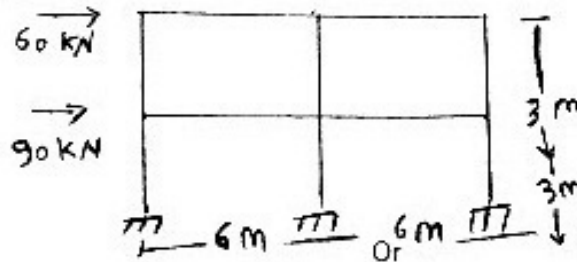
Paper: CE-702

Time : 3 Hours

Maximum Marks -60

Note: Assume missing data suitably according to its specification.

- Q.1. Find bending moment, shear force and axial force in Beam EF and column using portal method? 12



- (a) Discuss classification of shear wall? 6
(b) Explain the difference between a braced and an unbraced building. What condition should be satisfied by a braced building? 6

- Q.2. Design the stem of a cantilever retaining wall to retain leveled Earth 6.0m above base slab. Take density of soil as 18 kN/m^3 and angle of repose 30° . Apply check for shear. sketch the detail. Assume suitable data according to IS specification. 12

Or

- (a) Define retaining wall? 4
(b) Discuss the function of shear key? 4
(c) Explain the design of counter fort retaining wall? 4

- Q.3. Design the roof dome. Top ring beam and cylindrical wall of an Intze tank having diameter = 12m Height of cylindrical wall = 8m Rise of top dome = 1.8m 12

Or

Design a circular tank with flexible base for capacity of 600KL. The depth of tank is 6.0m Including a free board of 0.2m. 12

- Q.4. Design the bunker to be used for storing coal with following: 12

- (a) Capacity of bunker = 500 KN
(b) Unit weight of coal = 8 kN/m^3
(c) Size of bunker in plan = $4.0 \times 4.0\text{ m}$
(d) Bottom opening = $0.5\text{ m} \times 0.5\text{ m}$

Or

Distinguish between behaviour of bunker and a silo also explain the procedure for design of a silo. 12

- Q.5. (a) Explain pre-tensioned and post tensioned? 4
(b) What are different type of "losses" encountered in prestressing concrete? 4
(c) Discuss advantage of prestressed concrete? 4

Or

Design a solid slab bridge for the following data: 12

- (a) Clear span = 6.5m. clear width of Roadway = 7.6m, thickness of wearing coat = 75mm
Bearing on support = 400mm.
(b) IRC class AA tracked vehicle, Use M25 Grade concrete and Fe415 grade steel.