

ASSIGNMENT-1 OF CONCRETE STRUCTURE

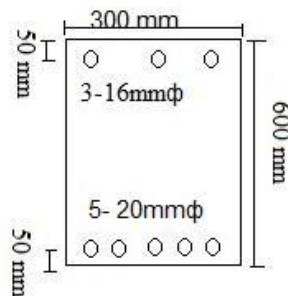
Q1. Find out moment of resistance(M.R.) of a beam section 400x600 mm overall depth with 50 mm effective cover. M25 concrete and Fe415 steel has been used. Steel bar is used 3 -16 mm ϕ .

Q2-If the beam is 3m long, simply supported at either end and carries two point loads of 5kN at 1m from the left hand end and 10kN at 2m from the left hand end

(a) Calculate the maximum bending moment

(b) Calculate the maximum stress in the beam .

Q3-. Find out M.R. of the doubly reinforced beam as shown in the figure. M20/Fe500 is used.



Q4-- Analyse a T-beam section of 300 mm width of web, 1500 mm width of flange, 100 mm thickness of flange and 500 mm effective depth to determine the ultimate moment resistance for three cases of tension reinforcement.

1) 4*25 mm dia ,(2) 6*28 mm dia and (3) 8*28 mm dia.

Consider concrete of grade M20 and steel of grade Fe415

Q5- A RCC beam has an effective depth of 500 mm and a breadth of 350 mm . it contains 4-25 mm bars. If (1) $f_{ck} = 15 \text{ N/mm}^2$ and $F_y = 250 \text{ N/mm}^2$.

ASSIGNMENT-2 OF CONCRETE STRUCTURE

Q1- A RCC beam of size 300x500 mm is provided 2-25mm dia bars. The beam is subjected to a load of 30 kn/m included self weight over a span of 5 m. check the reinforcement for bond. M20 and fe415 steel is used?

Q2-calculate development length required for M25 grade of concrete and Fe 415 steel for bars in tension and compression. Use L.S.M case.

Q3- Design a continuous rcc slab for a hall 7m wide and 14 m long. The slab is supported on three rcc beam equally spaced. Each beam is 300 mm wide which are monolithic. The end of the slab are supported on walls, 300 mm wide.design the slab for a live load of 2 kn/m^2 . assume the weight of roof finishing equal to 1.0 kn/m^2 . use m20 concrete and fe415 steel?

q4- design a rectangular RCC beam of width 400 mm subjected to following at particular section

- 1) BM= 240 KNm
- 2) SF= 120 KNm
- 3) TM=80 kN

Q5- Design a short column, square in section, to carry an axial load of 2000 kn using M20

- 1) Mild steel
- 2) Fe415

Q6- Design a square spread footing to carry a column load of 1000KN, from a 40 cm square tied column containing 20 mm bar as the longitudinal steel. The bearing capacity of soil is 100KN/sqm. Consider base of footing at 1m below the ground level. The unit weight of earth is 20KN/m³. M15 and HYSD bar