



- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answer necessary with the help of neat sketches.
 5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) Write down assumptions of cantilever method. 2
b) Analyse the frame as shown in Fig. Q.1(b) by using portal method. 11

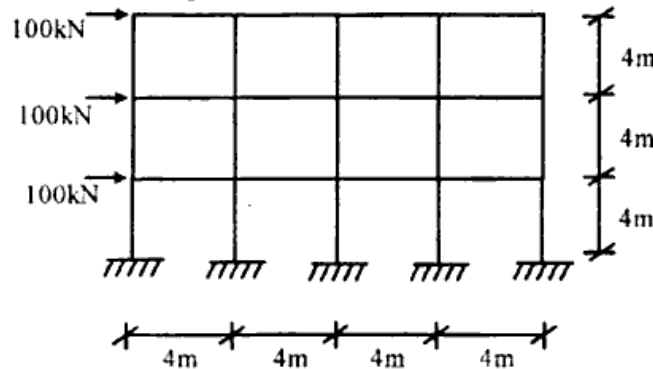


Fig. Q. 1 (b)

OR

2. a) Define shear centre and shear flow. 2
b) Locate shear centre for the thin walled cross section in Fig. Q.2(b). Thickness of section = 0.001m 11

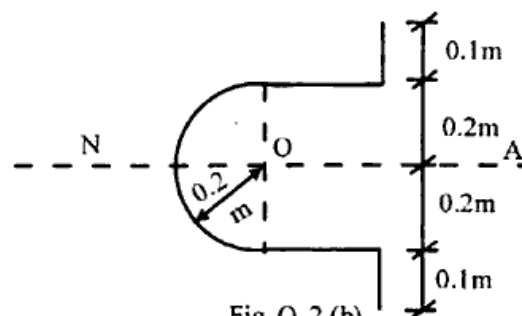


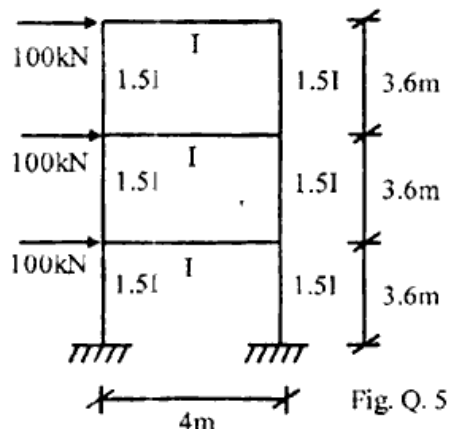
Fig. Q. 2 (b)

3. A semicircular beam curved in plan is simply supported at both ends A & B continuous over central support C and has a radius of curvature R. The beam is subjected to a UDL of intensity 'w' throughout. Analyse and draw SFD, BMD and TMD. 14

OR

4. A symmetric rectangular portal frame ABCD of uniform section is fixed at A and D. The column AB and DC are 4m high and beam BC is 5m long. Beam BC carries a load of 10kN at 2m from B and column AB carries horizontal distributed load of 2kN/m from left to right. Use elastic centre method and find reaction at supports. Draw BMD. 14

5. Analyse the multistoreyed portal frame as shown in fig Q.5 using cantilever moment distribution method and draw BMD. 13



OR

6. Analyse Vierendeel girder as shown in Fig. Q.6 by using cantilever moment distribution method. 13

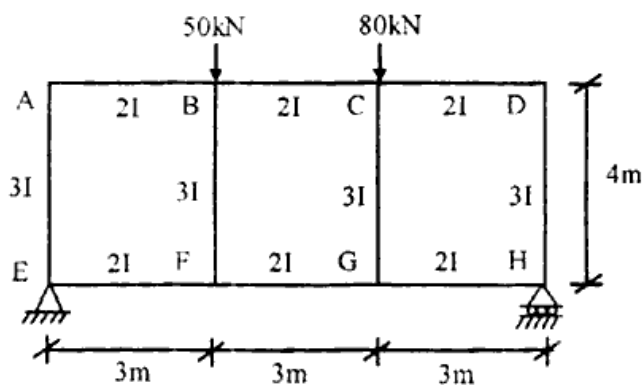


Fig. Q. 6

SECTION - B

7. a) State minimum potential theorem. 3
b) A propped cantilever AB is fixed at A and propped at B. It carries a UDL of intensity 'w' throughout. Taking $y = A(-x^2/L^2 + x^3/L^3)$, calculate central deflection, 10

OR

8. A beam fixed at both ends and having uniform flexural rigidity EI. Carries a concentrated load 45 kN at a point 4m from left end A where 12 m is span of beam. In addition, it carries a UDL of intensity 20 kN/m upto a length of 4m from right hand support B. Dividing the beam in four equal part and using the finite difference technique, draw deflection curve. 13

9. Derive two dimensional stress and strain compatibility equations. 13

OR

10. a) Prove shear stress $T_{xy} = T_{yx}$. 6
b) Derive strain-displacement relation in 2D Cartesian coordinates. 7
11. A straight uniform column of height 'L' is subjected to an axial compressive force 'P' in addition to a transverse UDL 'W' throughout its height. Calculate central deflection and BM. if the column ends are hinged. 14

OR

12. Find the horizontal earth quake force by using equivalent static analysis method for a five storeyed building situated in zone III for following data: 14
- i) Floor Height = 3.5m
 - ii) No. of Bays (in both directions) = 4
 - iii) c/c distance between columns = 5m (in both directions)
 - iv) Depth of footing = 1m
 - v) Slab thickness = 150 mm
 - vi) Beam size = 230 x 525 mm (including slab)
 - vii) Column size = 230 x 450 mm
 - viii) Dead load due to finishes on slab = 2 kN/m^2
 - ix) Imposed load = 4 kN/m^2
 - x) There are no infill walls.
- Building type is commercial foundation is resting over medium soil.

http://www.sgbauonline.com

Whatsapp @ 9300930012

Your old paper & get 10/-

पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से