Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE Arch. – SEMESTER – II • EXAMINATION – WINTER 2013

Subject Code: 1025004 **Date: 20-12-2013**

Subject Name: Structures - II

Time: 10:30 am - 12:30 pm **Total Marks: 50**

Instructions:

1. **Attempt any five questions. Q-1 is Compulsory**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Each question carry equal marks (10 marks)**

Q.1 (a) Define the Following team: (05)

i. Stress ii. Modulus of Elasticity iii. Normal stress

iv. Strain v. tangential stress

(b) Enlist the types of beam and also Explain the difference between truss and frame. (05)

Q.2 Explain following (ANY TWO) (10)

(a) Explain the determine and indeterminate truss and also write the assumption regarding plane truss.

(b) Explain the following teams with net sketches:

(1).prismatic element (2). Non-prismatic element

(c) Explain the various types of trusses as per stability?

Q.3 Explain following (ANY TWO) (10)

(a) Explain the point of contra flexure?

(b) Difference between composite element and compound element.

(c) Explain the types of support condition with net sketches.

Q.4 Answer any TWO: (10)

(a) Explain the team of : i) shear force ii) bending moment.

(b) Draw the shear force and bending moment diagram for simply supported beam which are carrying u.d.l W kn/m on hall span of beam L m .

(c) Find out the support reaction of simply supported beam of Fig. No. 1

Q.5 Find out reaction and the force in memberAE, BE,BC and BG of the plane truss, the truss as shown in fig 2. (10)

(OR)

Q.5 Determine the truss as shown in fig 3.find out the forces in all member.

Q.6 Draw the shear force and bending moment diagram for beam as shown in fig 4, also find out moment at point of contra flexure. (10)

OR

Q.6 Draw the shear force and bending moment diagram for beam as shown in fig 5,also determine the maximum moment in beam. (10)

Q.7(a) A circular rod of dia 25mm and 800 mm long is subjected to tensile force 75kn.the modulas of elasticity for steel may be taken as 250 kn/mm^2. Find stress,strain and elongation of the bar due (05)

to applied load.

(b) Derive the equation for bar deformation due to only self weight. (05)

OR

Q.7 A steel road of 150mm dia is inserted in to a copper tube of 250mm external diameter and 200mm internal diameter.the composite section is subjected to axial tensile force 120 kn the length of the section is 500mm.when value of Es = 210 GPA and Ec = 130 GPA (05)

(b) Drive the equation for bar deformation due to only axial load. (05)

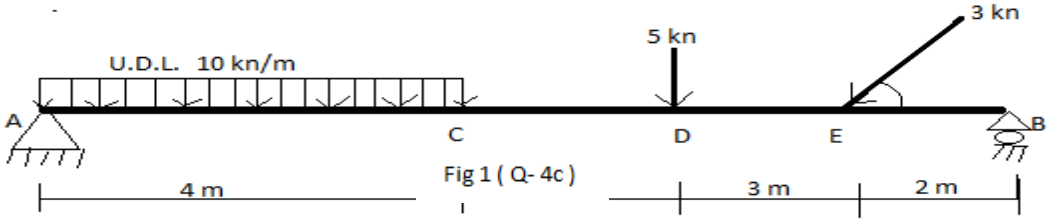

Fig 1 (Q- 4c)

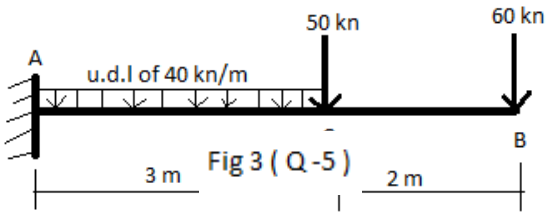

Fig 3 (Q -5)

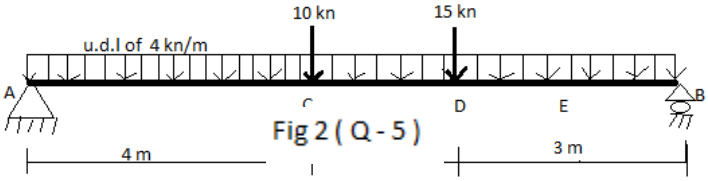

Fig 2 (Q - 5)

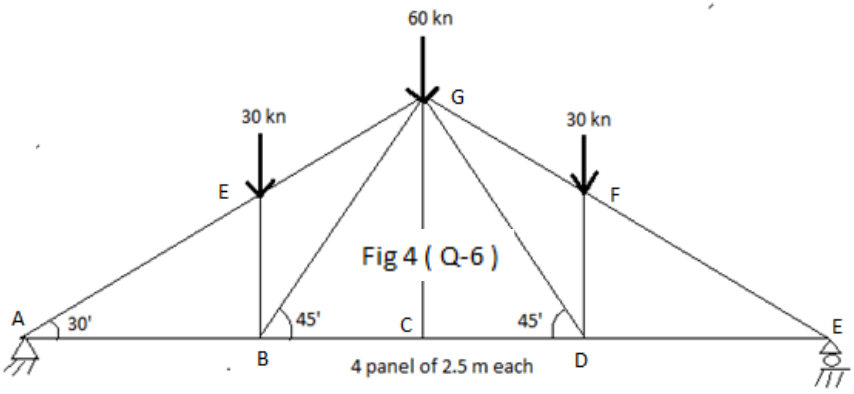

Fig 4 (Q-6)

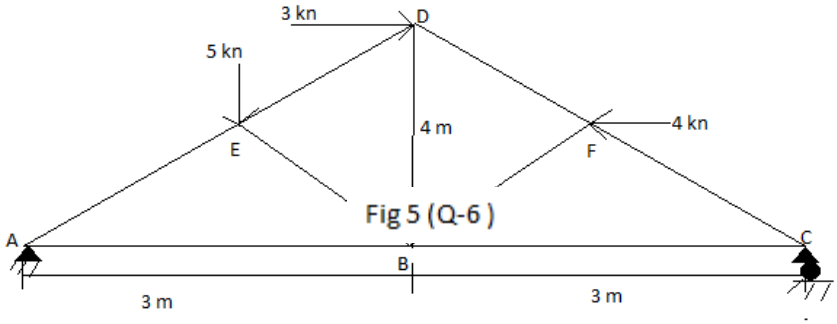

Fig 5 (Q-6)

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