



Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : X 60258

B.E./B.Tech. DEGREE EXAMINATIONS, NOV./DEC. 2020

Sixth Semester

Civil Engineering

CE2351/CE1352/CE61/10111CE602/080100036 - Structural Analysis -II

(Regulations 2008/2010)

(Common to PTCE 2351/10111CE602 – Structural Analysis – II for
BE (Part-Time) Fourth Semester – Civil Engineering – Regulations 2009/2010)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. Differentiate pin-jointed plane frame and rigid jointed plane frame.
2. Mention any two methods of determining the joint deflection of a perfect frame.
3. Write the element stiffness matrix for a beam element.
4. When is stiffness method preferred over flexibility method ?
5. What is meant by discretisation of structures ?
6. Define beam element.
7. Explain briefly the pure bending.
8. State plastic moment of resistance.
9. Differentiate curved beams and beams curved in plan.
10. Give the applications of three hinged stiffening girders.

PART – B

(5×16=80 Marks)

11. a) A continuous beam ABC is fixed at A and has roller supports at B and C. AB = 5 m and BC = 3 m. It is subjected to a udl of intensity 15 kN/m throughout the span. Analyse the beam using flexibility matrix method. EI is constant throughout.

(OR)



- b) Analyse the portal frame shown in Fig. Q. 11 (b) using flexibility matrix method. EI is constant throughout.

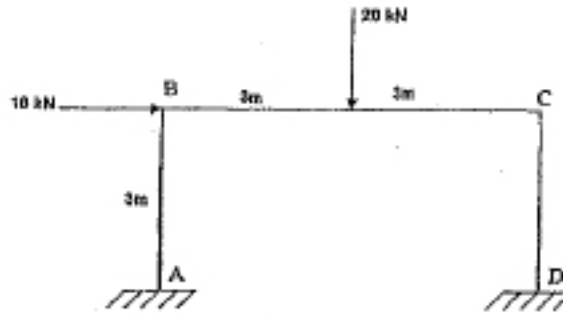
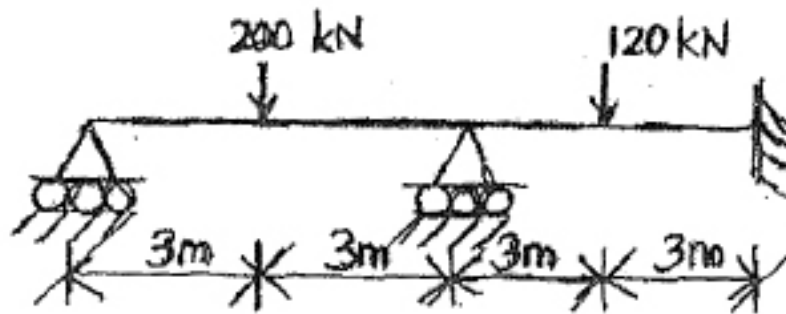


Fig. Q. 11 (b)

12. a) Analyse the continuous beam shown in Fig. Q. 12(a) using displacement method.



EI Const
Fig. Q. 12(a)

(OR)

- b) Analyse the truss shown in Fig. Q. 12(b) using displacement method.

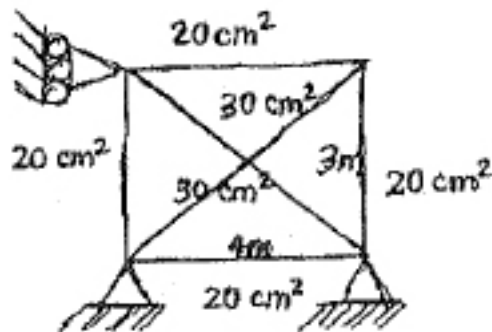


Fig. Q. 12(b)



13. a) Explain the types and applications of beam elements in finite element method.

(OR)

b) Explain the methods of solving plane stress and plane strain problems using finite element method.

14. a) Find the plastic moment capacity of the beam shown in Fig. Q. 14 (a). EI is constant throughout.

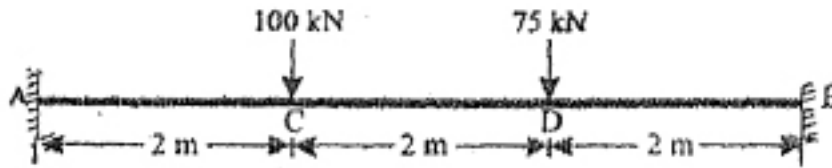


Fig. Q. 14(a)

(OR)

b) Determine the plastic moment capacity of the frame for the loading given in Fig. Q. 14 (b).

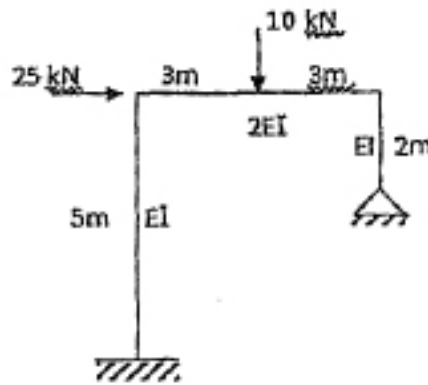


Fig. Q. 14(b)

15. a) A suspension bridge cable of span 90 m and central dip 6 m is suspended from the same level at two towers. The bridge cable is stiffened by a three hinged stiffening girder which carries a single concentrated load of 25 kN at a point of 40 m from one end. Sketch the SFD for the girder.

(OR)

b) Analyse a semicircular beam simply supported on three supports equally spaced. The beam carries a load w per unit length. R be the radius of the centre line of the beam.