

PART - B

(5×13=65 Marks)

11. a) Analyse the truss shown in Fig.2 by flexibility approach. AE is Constant for all members.

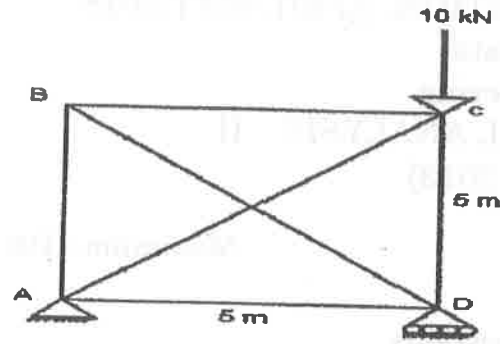


Fig.2

(OR)

- b) Analyse the continuous beam shown in Fig.3 by flexibility approach. EI is constant throughout.

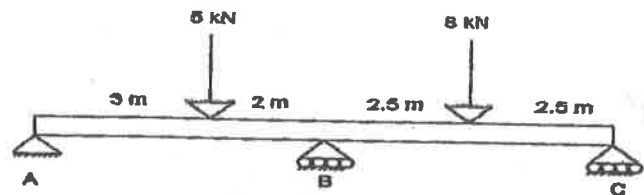


Fig.3

12. a) Analyse the truss shown in Fig.4 by stiffness method. AE is constant for all members.

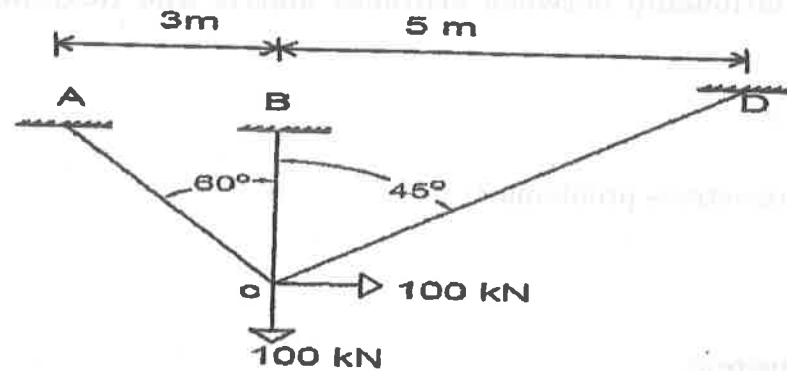


Fig.4

(OR)



- b) Analyse the continuous beam shown in Fig.5 by stiffness method. EI is constant for all members.

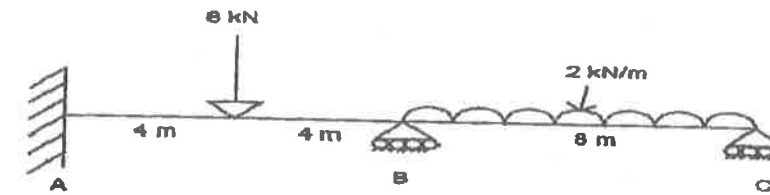


Fig.5

13. a) i) Enumerate the steps involved in the finite element method. (8)
 ii) What are the different types of elements used in FEM? (5)
 (OR)
 b) i) State the requirements of shape functions for convergence. (8)
 ii) What are generalized coordinates and natural coordinates? (5)
14. a) Determine the shape factor of a T section of size (120 × 120 × 10 mm). (OR)
 b) Calculate the plastic moment capacity required for the continuous beam shown in Fig.6 with working loads.

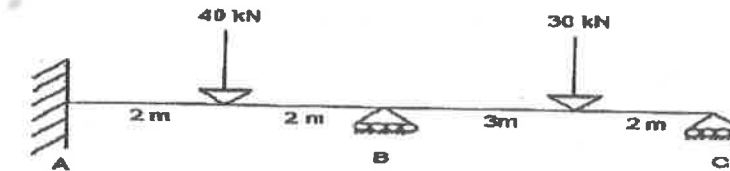


Fig.6

15. a) Explain the procedure involved in tension coefficient method for space trusses. (OR)
 b) A cable of span 100 m has its ends at heights 8 m and 15 m above the lowest point of the cable. It carries a UDL of 10 kN/m per horizontal run of the span. Determine the horizontal and vertical reactions at the supports. What is the length of the cable?

PART - C
Case Study

(1×15=15 Marks)

16. An overhead circular water tank is to be supported by a number of columns placed at regular intervals. Number of columns may be 4, 6, 8, 10, 12 or 16. They are connected by means of a beam. Explain how will you find the stress resultants, choosing any one of these number (of the columns).