



17CV52

**Fifth Semester S.E. Degree Examination, Dec. 2019**  
**Analysis of Indeterminate Structures**

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

**Module-1**

- 1 Analyse the beam completely by slope deflection method relative to support A support B sinks by imm and support C rises by 0.5 mm. Take  $EI = 30000 \text{ kN-m}^2$ . Refer Fig.Q1. Draw BMD, SFD and Elastic curve.

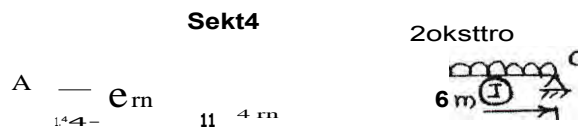


Fig.Q1

(20 Marks)

OR

- 2 Analyse the given frame by slope deflection method. Draw SFD, BMD and elastic curve. Refer Fig.Q2.

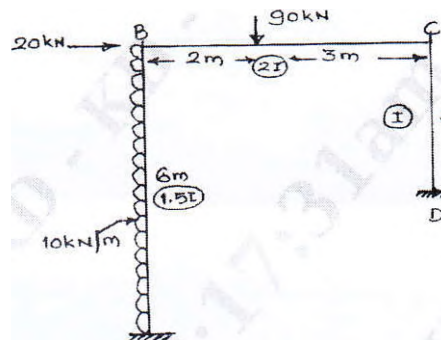
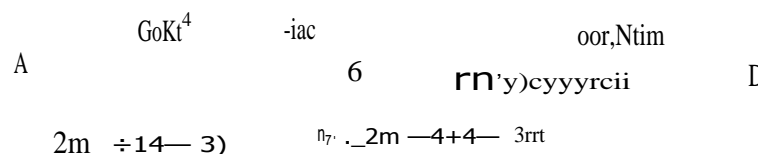


Fig.Q2

(20 Marks)

**Module-2**

- 3 Analyse the beam shown in Fig.Q3 by moment distribution method. Draw BMD, SFD and elastic. curve.



(20 Marks)

OR

- 4 Analyse the frame by moment distribution method. Draw BMD, SFD and elastic curve. Refer Fig.Q4.

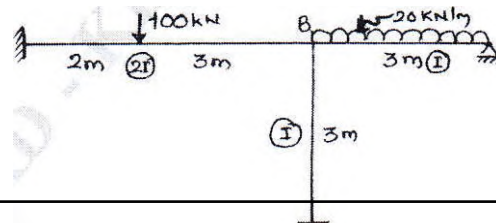


Fig.Q4

(20 Marks)

**Module-3**

- 5 Analyse the three span continuous beam shown in Fig.Q5 by using Kani's method. L BMD, SFD and elastic curve.

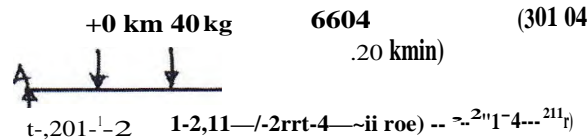


Fig.Q5

(20 Marks)

**OR**

- 6 Analyse the portal frames shown in Fig.Q6 by using Kani's method. Draw BMD, SFD and elastic curve.

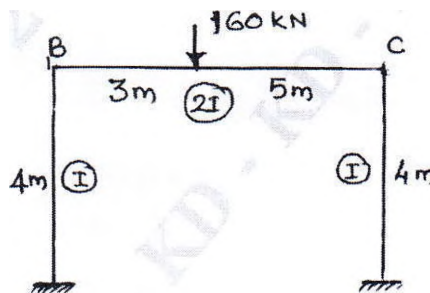


Fig.Q6

(20 Marks)

**Module-4**

- 7 Analyse the continuous beam shown in Fig.Q7 by flexibility method using system approach. Support B sinks by 5 mm sketch BMD, SFD and elastic curve. Take  $EI = 15 \times 10^6 \text{ kN-m}^2$ .

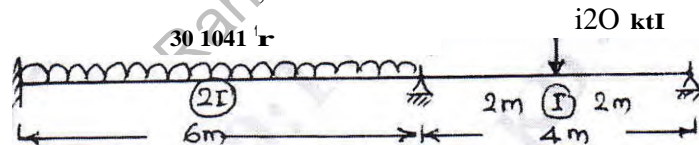


Fig.Q7

(20 Marks)

**OR**

- 8 Analyse the pin jointed plane truss shown in Fig.Q8 by using flexibility matrix method. Assume  $\delta = 0.025 \text{ mm/kN}$  for each member. Tabulate the member forces.

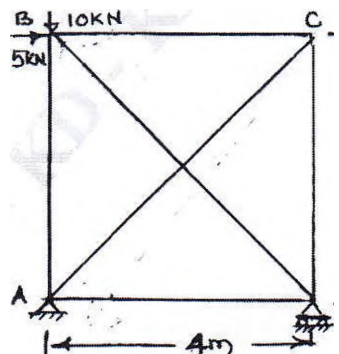


Fig.Q8

(20 Marks)

17CV52

**Module-5**

- 9 Analyse the frame shown in Fig.Q9 by stiffness matrix method and draw BMD, SFD and Elastic curve. Assume EI is constant throughout.

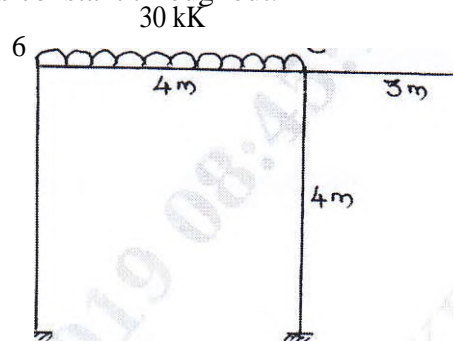


Fig.Q9

(20 Marks)

**OR**

- 10 Analyse the continuous beam shown in Fig.Q10 by using stiffness matrix method.

3ekk 40kt-4 40k.w.

rr ,2. re) rr

Fig.Q10

(20 Marks)