CBCS SCHEME

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020
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 1mm and support C rises by 0.5 mm. Take EI = 30000 kN-m2. Refer Fig.Q1. Draw BMD, SFD and Elastic curve.

Fig.Q1   (20 Marks)

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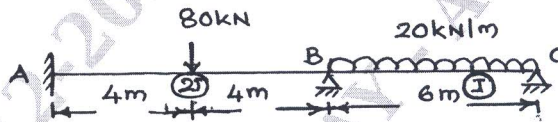
2   Analyse the given frame by slope deflection method. Draw SFD, BMD and elastic curve. Refer Fig.Q2.

Fig.Q2   (20 Marks)

Module-2
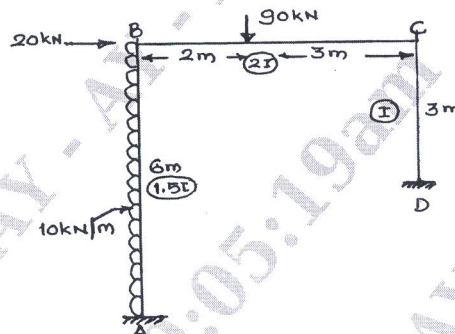
3   Analyse the beam shown in Fig.Q3 by moment distribution method. Draw BMD, SFD and elastic curve.

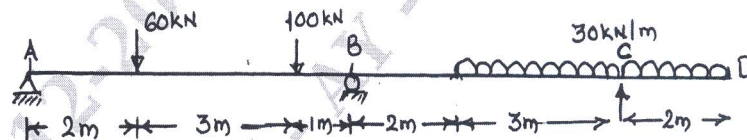Fig.Q3   (20 Marks)

OR

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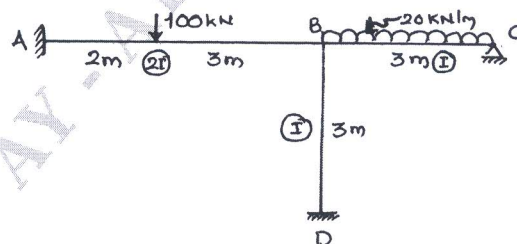

Fig.Q4

(20 Marks)

Module-3

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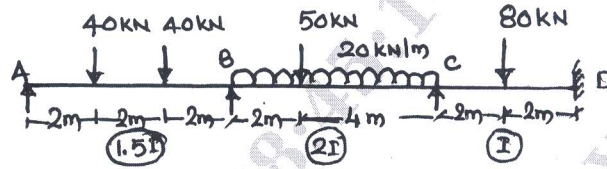

Fig.Q5   (20 Marks)

OR

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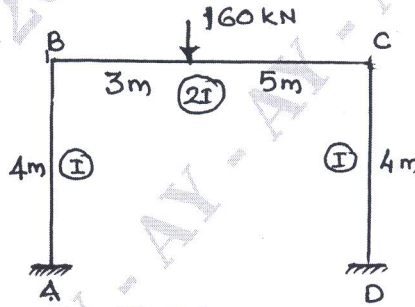

Fig.Q6   (20 Marks)

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 $EI = 15 \times 10^3$ kN-m^2.
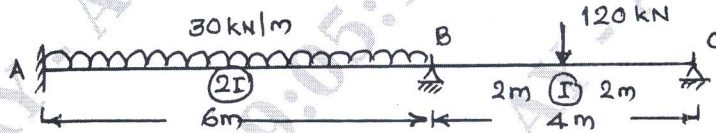

Fig.Q7   (20 Marks)

OR

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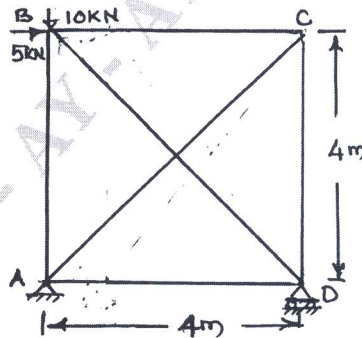

Fig.Q8   (20 Marks)

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.
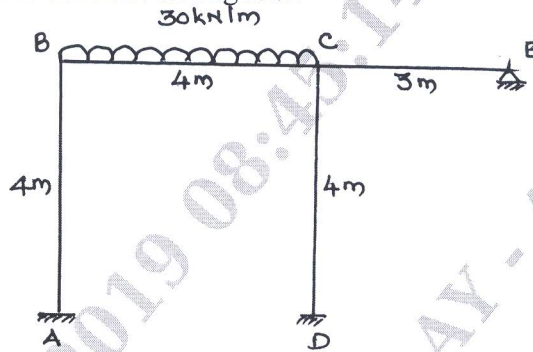
30kN/m

B ———— C ———— E

4m (BC)

5m (CE)

4m (AB)

4m (CD)

A   D

Fig.Q9   (20 Marks)

OR

10 Analyse the continuous beam shown in Fig.Q10 by using stiffness matrix method.
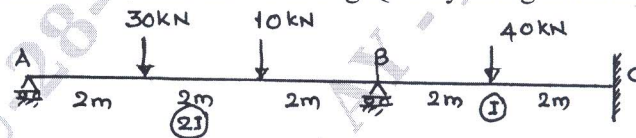
30kN   10kN   40kN

A   2m   2m   2m   B   2m   2m   C

(2I)   (I)

Fig.Q10   (20 Marks)

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