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M S RAMAIAH INSTITUTE OF TECHNOLOGY

(AUTONOMOUS INSTITUTE, AFFILIATED TO VTU)

BANGALORE – 560 054

SEMESTER END EXAMINATIONS – DEC 2013 / JAN 2014

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Course & Branch : **B.E.- Civil Engineering**		**Semester** : **V**
Subject : **Structural Analysis-II**		**Max. Marks** : **100**
Subject Code : **CV501**		**Duration** : **3 Hrs**

Instructions to the Candidates:
- Answer one full question from each unit.
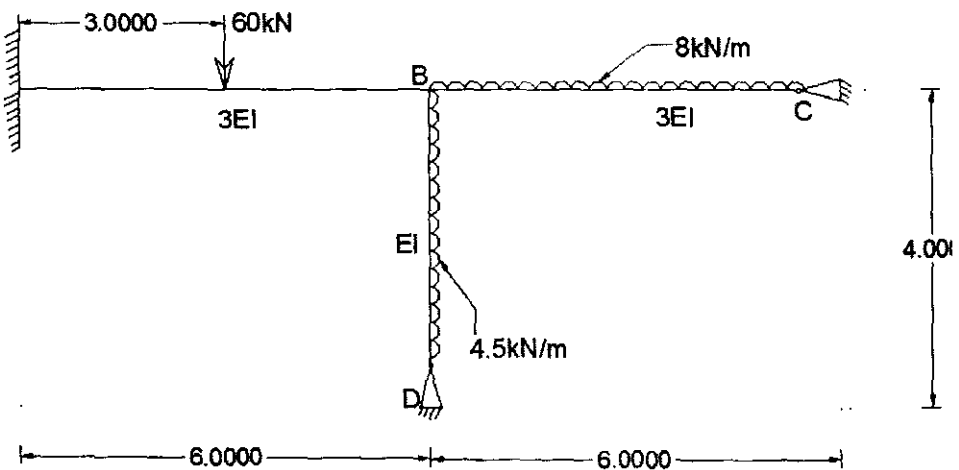- Any data missing can be assumed suitably.

UNIT – I

1. Analyze the continuous beam shown in fig-1 by slope deflection method. (20) The support B sinks by 8mm. Draw BMD, take $EI = 10 \times 10^6$ Nm^2
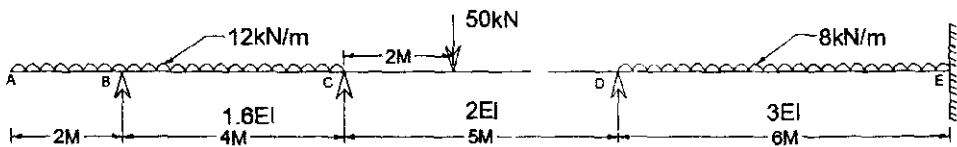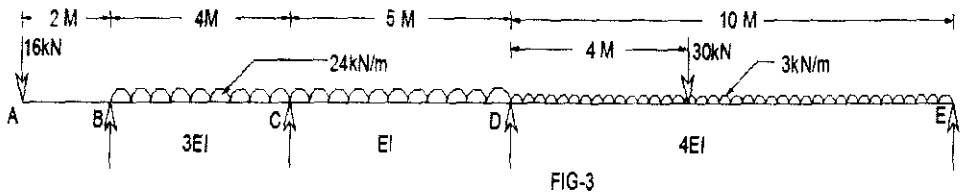
FIG-1

2. a) Analyze the frame shown in fig-2 by slope deflection method and draw (20) BMD.

FIG-2

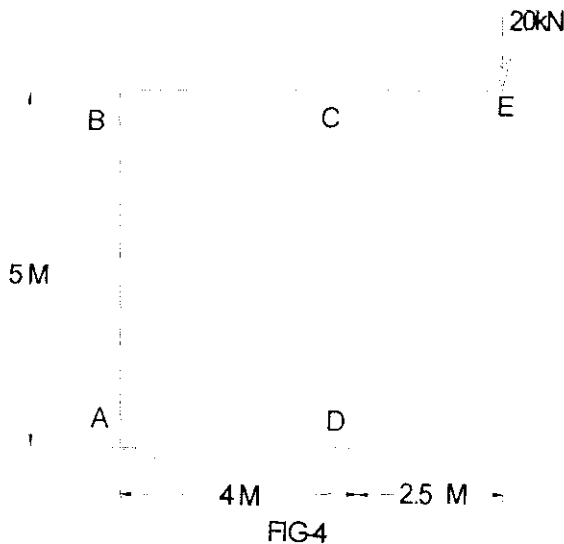## UNIT-II

3. Analyze the continuous beam shown in fig-3 by moment distribution (20) method and draw BMD.
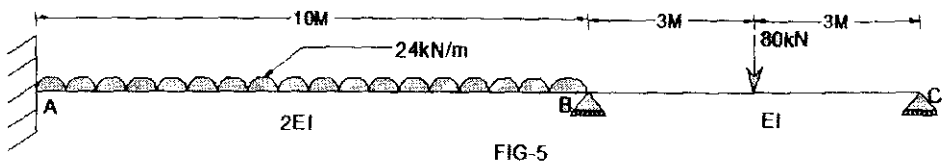

FIG-3

4. Analyze the frame shown in fig-4 by moment distribution method and (20) draw BMD where EI is constant.

FIG-4

UNIT-III

5. Analyze the continuous beam shown in fig-5 by flexibility matrix method (20) and draw SFD. What will be the change in the forces, if supports B and C settle down by 200/EI and 100/EI.

FIG-5

6. Analyze the plane truss shown in fig-6 by flexibility matrix method Take   (20)
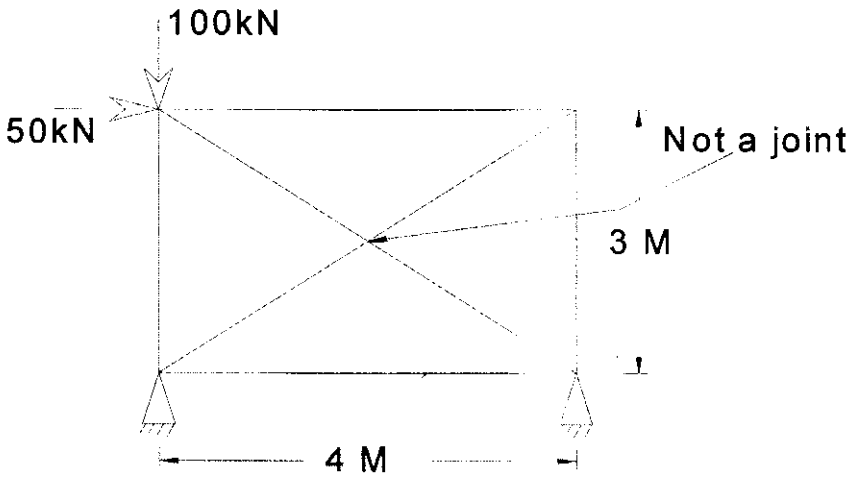   A=1200mm^2

FIG-6

UNIT-IV

7. a) Analyze the beam shown in fig-7 by stiffness matrix method. Draw SFD &   (20)
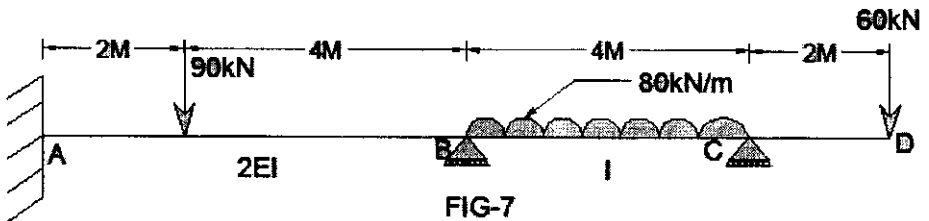   BMD

FIG-7

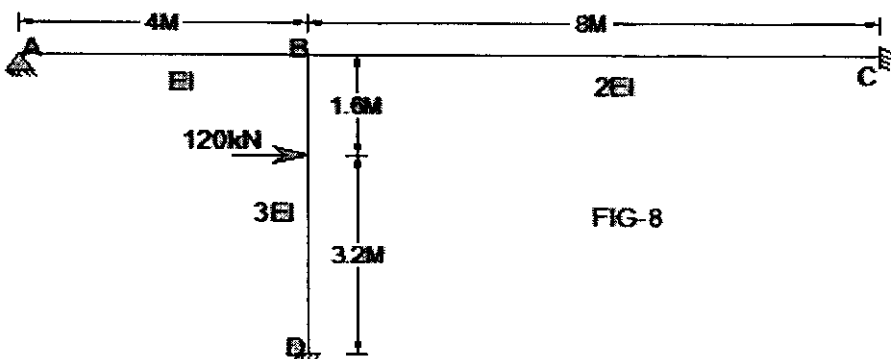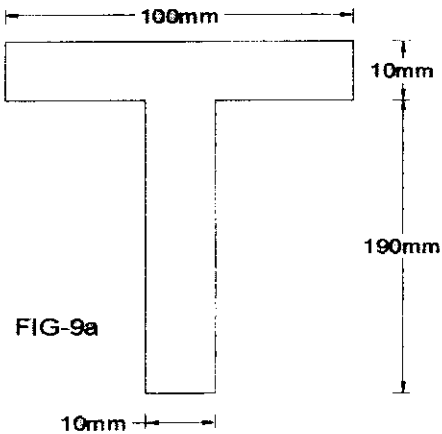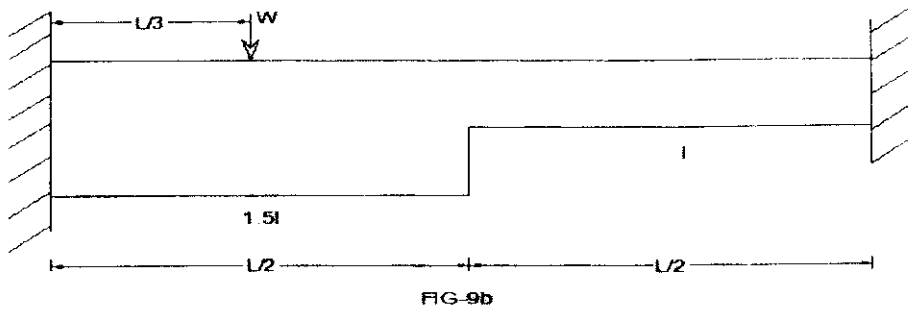8. a) Using displacement method analyze the frame shown in fig-8.Draw BMD   (20)
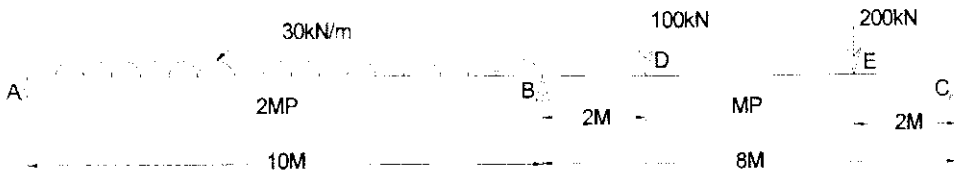

FIG-8

UNIT- V

9. a) Determine the shape factor for T-section shown in fig-9(a).   (08)

FIG-9a

100mm

10mm

190mm

10mm

b) Determine the collapse load of a fixed beam shown in fig-9(b), subjected   (12)
    to load W at $1/3^{rd}$ span.

L/3   W

1.5I

L/2   L/2

FIG-9b

10.   Analyze the continuous beam shown in fig-10 by equilibrium method.   (20)
       Draw plastic BMD. All the loads are service loads, use partial safety
       factor of 1.5

30kN/m   100kN   200kN

A   B   D   E   C

2MP   2M   MP   2M

10M   8M

FIG-10

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