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**SUBJECT CODE NO:- H-520**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**T.E.(CIVIL)**  
**Theory Of Structures-II**  
**(REVISED)**

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- 1) Question No. 1 & 6 are compulsory.
  - 2) Attempt any two questions from remaining each section.
  - 3) Assume suitable data if necessary & state it clearly.

**Section A**

- Q.1 Answer the following (Any Two) 10
- a) Derive slope deflection equation.
  - b) What are the assumption made is plastic theory?
  - c) Explain static & kinematic in determinacy of rigid plane frame & pin joined frames with suitable examples.

- Q.2 Analyze the continuous beam show in fig. 1 using slope deflection method.  $EI$  is constant and draw BMD. 15

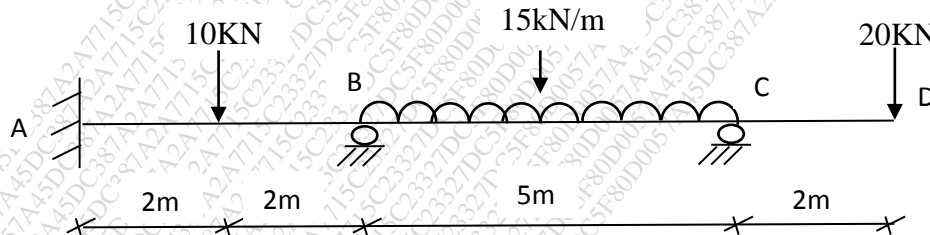


Fig. 1

- Q.3 Analyze the portal frame shows in fig. 2 by using column analogy method and draw BMD. 15

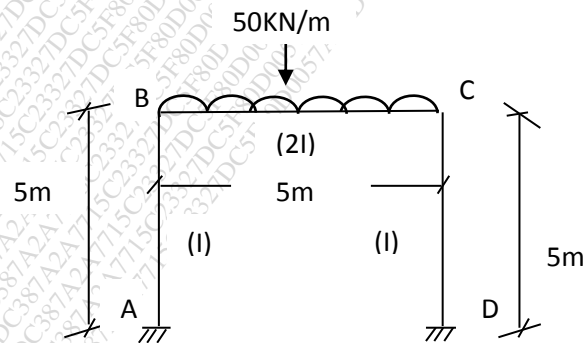


Fig. 2

Q.4 Analyze the pin jointed redundant truss as shown in fig. 3 take  $EI = \text{constant}$

15

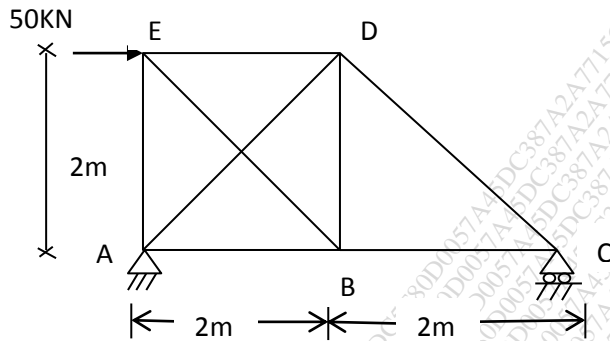


Fig. 3

Q.5 Answer the following

15

- Differentiate between rigid jointed plane frames & pin jointed plane frames.
- What is difference between plastic hinge & mechanical hinge?
- Write a note on shape factor and find shape factor for circle of diameter D.

**Section B**

Q.6 A) Answer the following (Any Two)

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- Explain effect of shortening of rib on two hinged arch.
- Define distribution factor & rotation factor.
- State moment distribution method.

B) Write a short note on sway analysis of frames using moment distribution method.

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Q.7 Analyze the continuous beam shown in fig. 4 & by using moment distribution method if support B sinks by 5mm. Take  $E = 200 \text{KN/mm}^2$ ,  $I = 3.5 \times 10^7 \text{mm}^4$  and draw BMD.

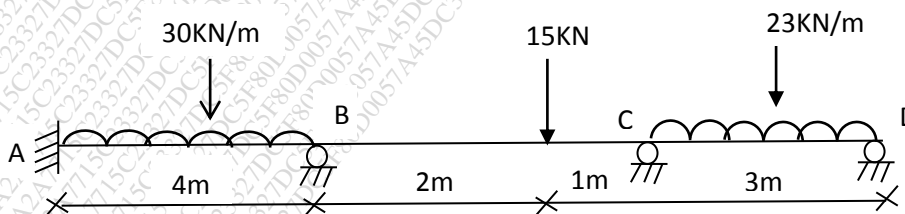


Fig. 4

Q.8 Analyze the portal frame shown in fig.5 by using Kani's method and draw BMD. 15

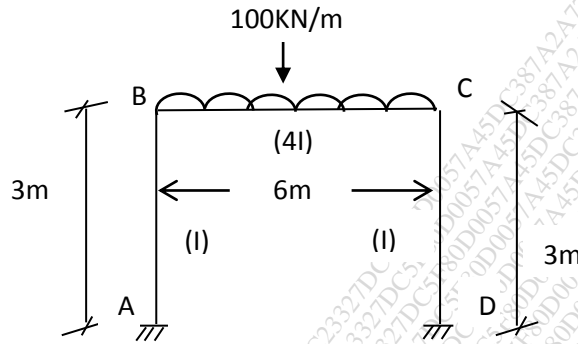


Fig. 5

Q.9 Analyze the portal frame shown in fig. 6 by using moment distribution method & draw BMD. 15

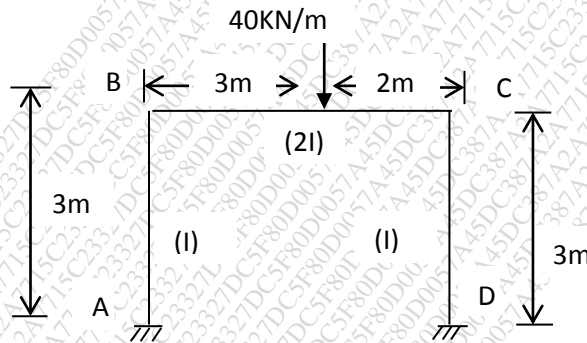


Fig. 6

Q.10 A two hinged parabolic area of span 20m and rise 4m carries uniformly distributed load of 50 KN/m on left half of span of arch. Find the reaction at the supports & position and amount of maximum bending moment. 15