

**SUBJECT CODE NO:- P-128**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**T.E.(CIVIL) Examination May/June 2017**  
**Theory of Structure - II**  
**(Revised)**

[Time: Three Hours]

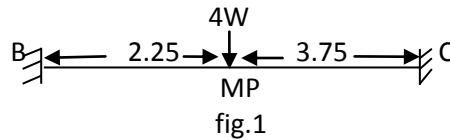
[Max.Marks:80]

Please check whether you have got the right question paper.

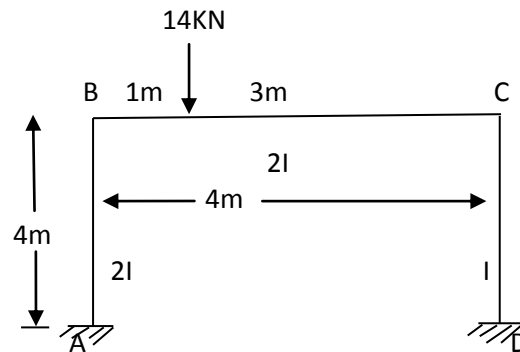
- N.B
- i. Question numbers one and six are compulsory
  - ii. Attempt any two questions from each section.
  - iii. Figures to the right indicate full marks.
  - iv. Assume suitable data if necessary.
  - v. Use of is 800 and steel table is permitted.

Section A

- |     |  |                      |
|-----|--|----------------------|
| Q.1 | <ol style="list-style-type: none"> <li>i. Explain load factor.</li> <li>ii. Find shape factor for circle of diameter D.</li> <li>iii. Explain Assumption is trusses.</li> <li>iv. State and explain General slope deflection equation</li> </ol> | 02<br>02<br>02<br>04 |
| Q.2 | a) Find the value of $w$ at collapse for the loaded shown in figure. 1.  | 05                   |



- |     |  |          |
|-----|--|----------|
|     | <ol style="list-style-type: none"> <li>b) Find the shape factor for triangle of base <math>b</math> and height <math>h</math>.</li> <li>c) State and explain upper bound and lower bound theorem.</li> </ol> | 05<br>05 |
| Q.3 | A portal frame ABCD is fixed at A and D and has rigid joint at B and C is loaded as shown in fig2. Plot the Bending moment diagram for same. Use column Analogy method                                       | 15       |



- |     |   |    |
|-----|---|----|
| Q.4 | Analyze the portal frame shown in fig 3 by slope deflection method –plot BMD. | 15 |
|-----|---|----|

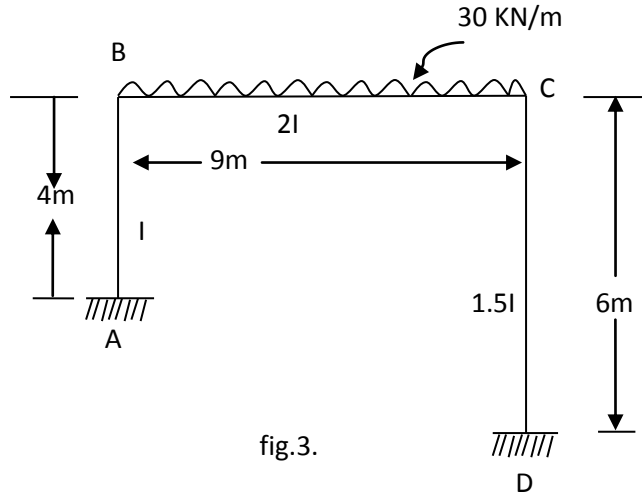


fig.3.

Q.5 In the plane braced frame shown in fig4 all the member have same cross sectional area at  $800 \text{ mm}^2$  and are made of same material .The member AC in the frame was initially short by  $2.5 \text{ mm}$ -Determine forces in each member. 15

$E=2 \times 10^5 \text{ N/mm}^2$ .

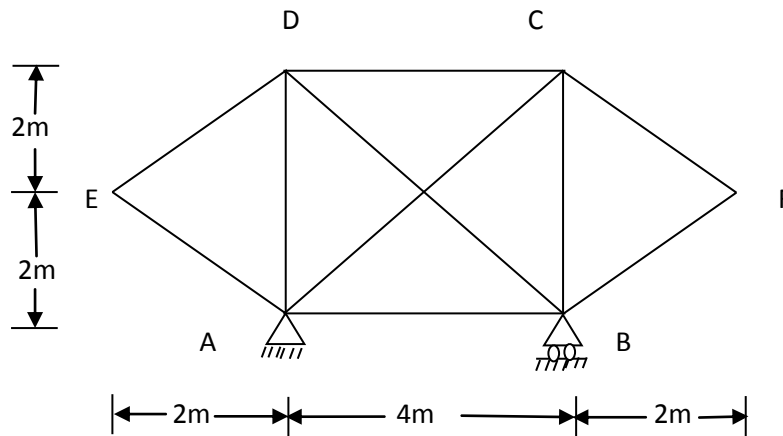


Fig.4

Section B

- Q.6 i. Explain sway frame and Non-sway frame. 02  
 ii. Explain Influence line diagram. 02  
 iii. A two hinged parabolic arch of span  $L$  and central rise  $h$  is subjected to a temperature rise of  $t^0$ . Derive an expression for horizontal thrust developed in the arch. 06
- Q.7 Analyze the frame shown in fig.5 by moment distribution method and Draw BMD. 15

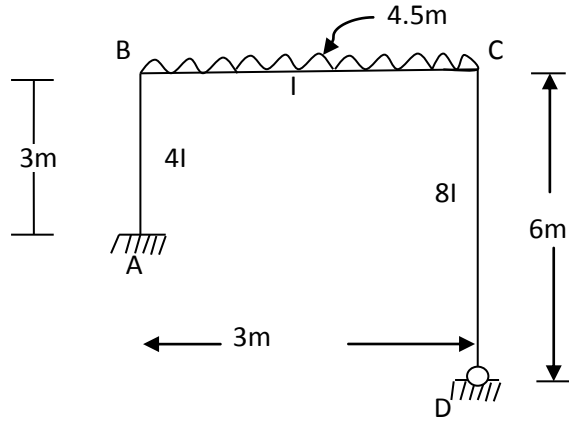


Fig.5

Q.8 Analyze the continuous beam shown in fig.6 by Kani's method and draw BMD. 15

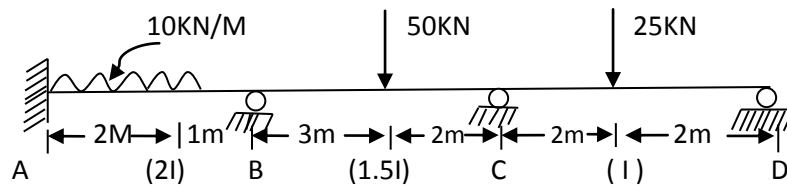


Fig. 6

Q.9 A two hinged parabolic arch of span 28m and central rise 4.5 m as shown in fig 7 Find horizontal thrust and radial shear at 10m from right support.  $I=I\sec\theta$ . 15

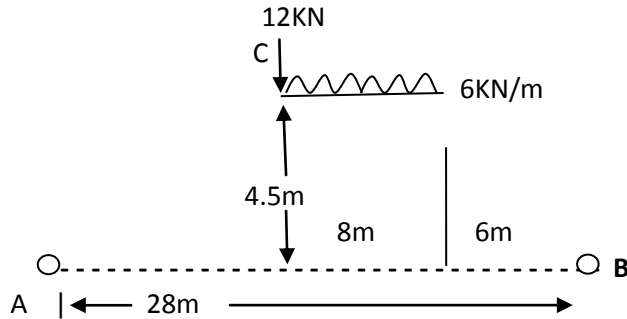


fig 7.

Q.10 a) Analyze the frame shown in fig 8 by moment Distribution method and plot BMD 08

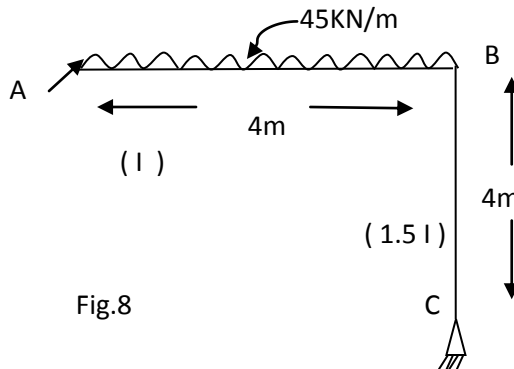


Fig.8

b) A two hinged parabolic arch of span 60m and central rise 6m is subjected to crown load of 40 KN .Find horizontal thrust and draw BMD

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