

## STRUCTURAL ANALYSIS – II

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answering the question in **Part-A** is compulsory  
3. Answer any **THREE** Questions from **Part-B**

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### PART -A

- Explain about Eddy's Theorem. [4M]
  - State the assumptions in Portal method. [3M]
  - What are the important characteristics of a cable? [3M]
  - What is distribution theorem? [4M]
  - What is the moment generated when any support sinks by an amount of  $\delta$  in any fixed beam of span  $L$  and flexural rigidity  $EI$ ? [4M]
  - Differentiate between Degree of static and kinematic indeterminacies. [4M]

### PART -B

- Calculate the reactions and Maximum Bending Moment for the given three hinged parabolic arch as shown in fig.1 [16M]

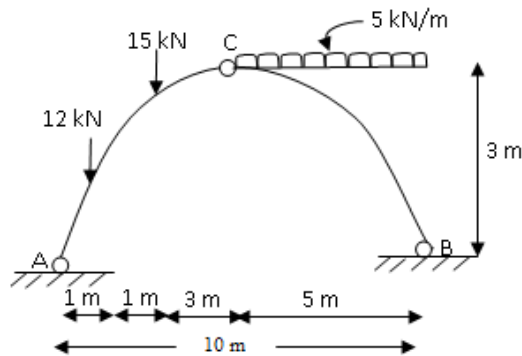


Fig.1

- Analyse the frame shown in fig.2 by using Portal method. [16M]

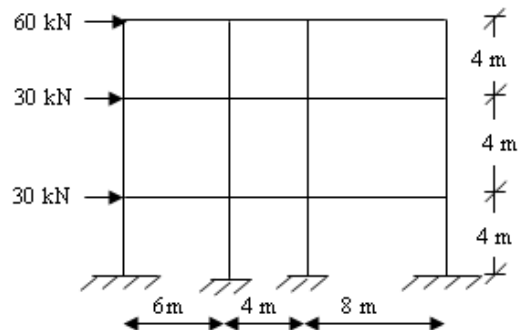


Fig.2



4 A suspension bridge of 120 m span has two girders supported by two cables having a central dip of 12 m. The road way has a width of 6 m. The dead load on the bridge is  $5\text{kN/m}^2$  while the live load is  $10\text{kN/m}^2$  which acts on the left half of the span. Determine the shear force and bending moment in the girder at 30 m from the left end. Find also the maximum tension in the cable for the position of live load. [16M]

5 Draw BMD for the Continuous beam shown in fig.3 by using Moment Distribution method. [16M]

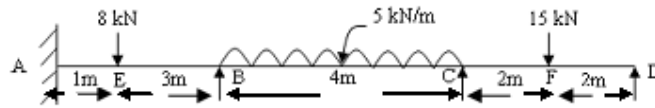


Fig.3

6 Analyse the frame shown in fig.4 by using Kani's method. [16M]

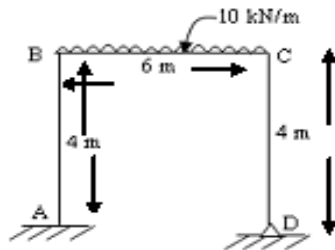


Fig.4

7 Draw BMD for the beam shown in fig.5 by using Flexibility method. [16M]

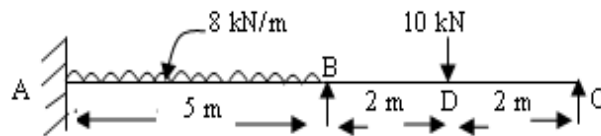


Fig.5

