

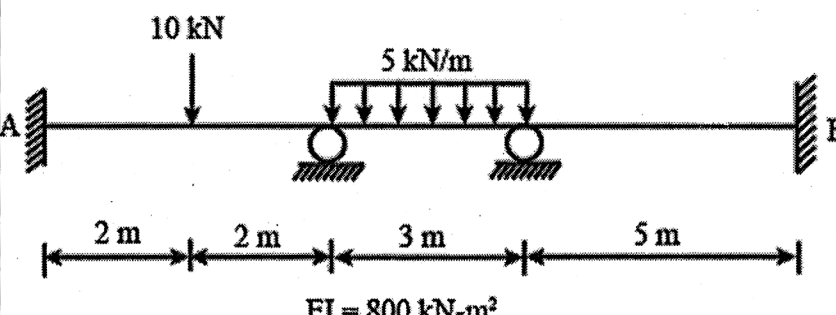
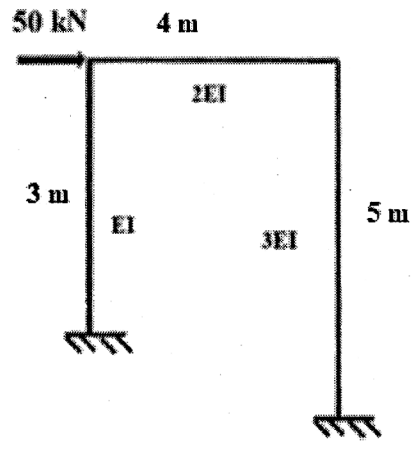
**BACHELOR OF ENGINEERING (CIVIL ENGINEERING) THIRD YEAR
FIRST SEMESTER SUPPLEMENTARY EXAM 2024**

**Theory of Structures- II
PART-I**

Time: Three Hours

Full Marks 100
(50 marks for 1st part)

Use a separate Answer-Script for each part
[No code or handbook is allowed]

No. of questions	Answer any two from the followings	Marks
<p>1(a)</p> <p>(b)</p>	<p>Analyze the beam and draw Bending Moment Diagram by slope deflection method.(Fig.1)</p> <p>Analyze the beam and draw Bending Moment Diagram by moment distribution method.(Fig.1)</p>  <p style="text-align: center;">Fig.1</p>	<p>12</p> <p>13</p>
<p>2</p>	 <p style="text-align: center;">Fig.2</p> <p>Analyse the Portal frame by Moment distribution method.</p>	<p>25</p>

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PART-I

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(50 marks for 1st part)

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No. of questions	Answer any two from the followings	Marks
3(a)	Find out the horizontal reactions, radial shear, normal thrust of a cubic parabola two hinge arch and a UDL (w) is acting over its whole span.	18
(b)	What is two hinge and three hinge arch? Why parabolic arch is preferable?	7

**Bachelor of Engineering (Civil Engineering) Third Year First Semester
Supplementary Exam. - 2024**

**THEORY OF STRUCTURES – II
PART – II**

Answer ANY TWO Questions.

Full Marks – 50

1. (A) State the assumptions of the Portal Method.
- (B) Determine the Bending Moment, Shear Force, and Axial force for all the members of the frame shown below (in Fig.-1) by Portal Method. Draw the Bending Moment and Shear Force diagrams.

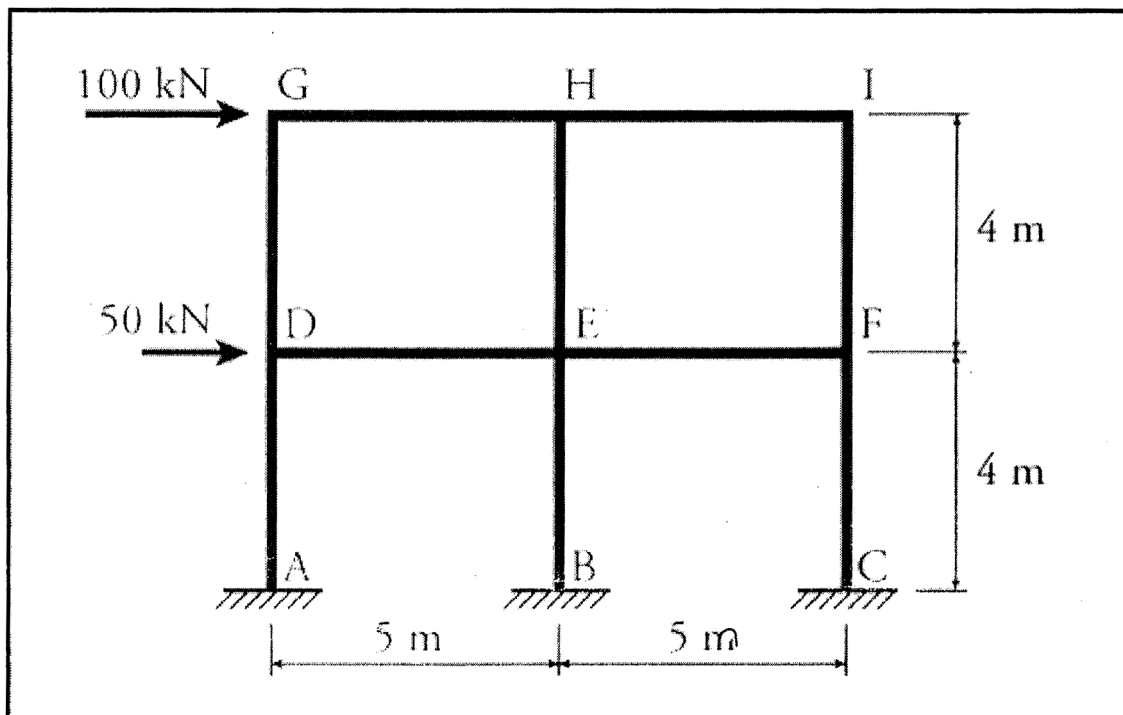


Fig.-1

2. (A) State the assumptions of the Cantilever Method.
- (B) Determine the Bending Moment, Shear Force, and Axial force for all the members of the frame shown in Fig.-2 (on the next page) by the Cantilever Method. Draw the Bending Moment and Shear Force diagrams.

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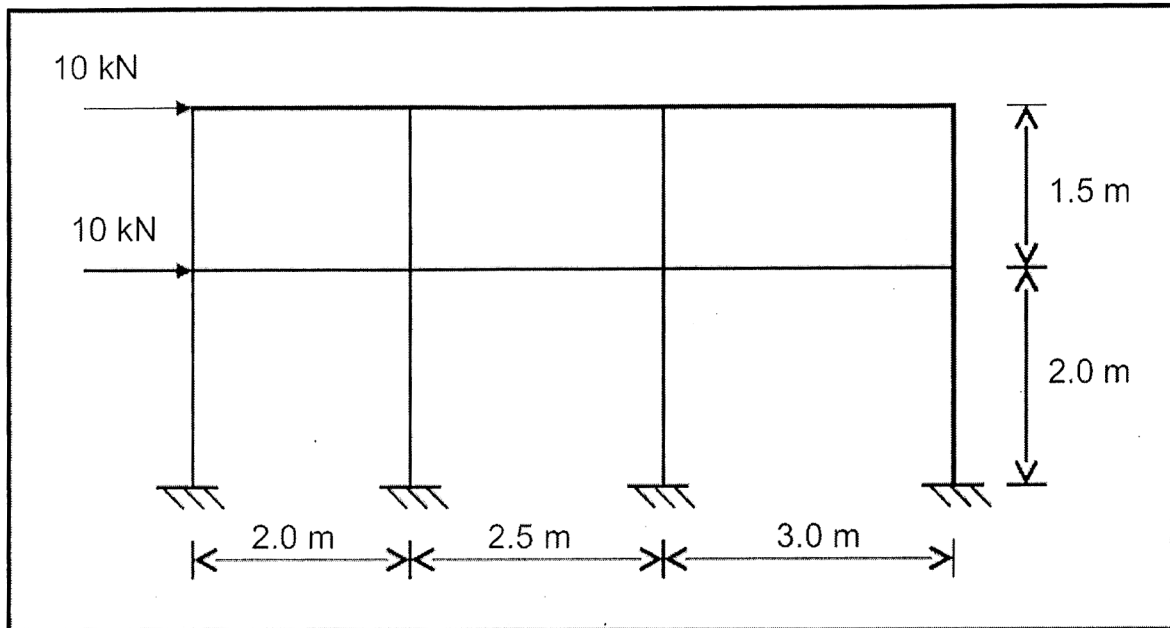


Fig.-2

3. (A) Discuss the assumptions and the basic theory behind the Substitute Frame Method.
- (B) Analyze the Substitute Frame shown in the figure below (in Fig.-3) to find the maximum Span-Moment in segment FG, for the given Dead Load of 10 kN/m and Live Load of 16 kN/m.

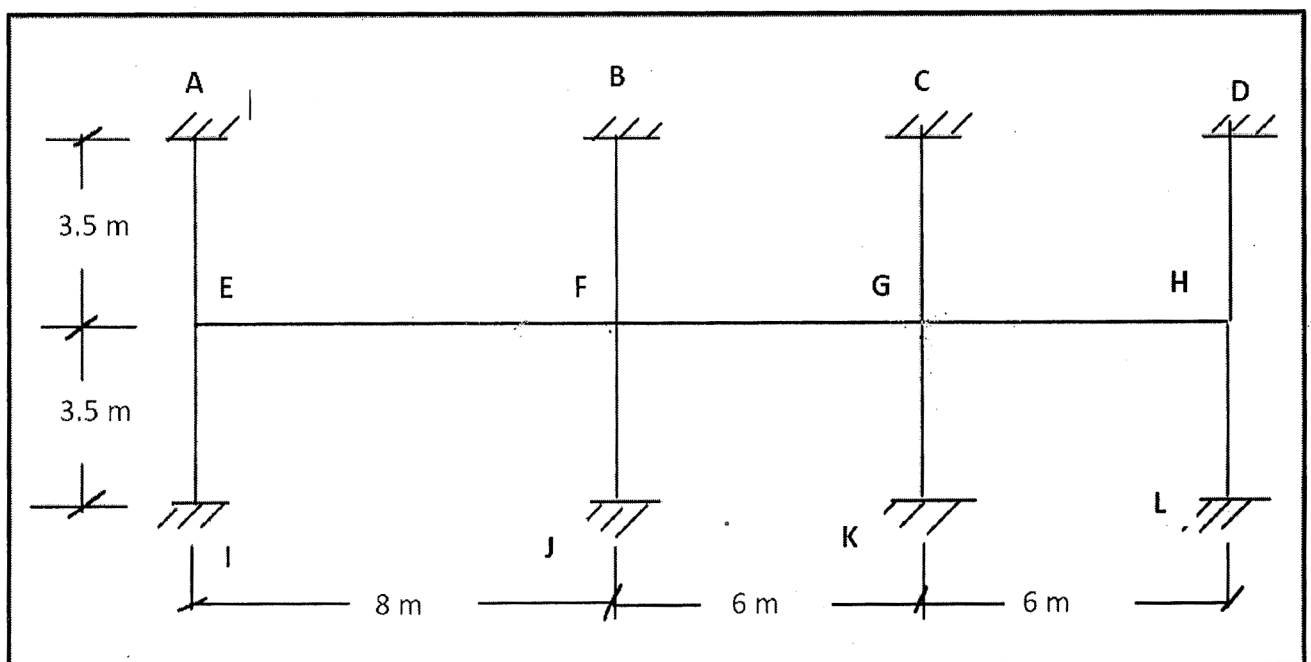


Fig.-3