Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B
consists of 5 Units. Answer any one full question from each unit. Each question carries
10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

|		
1.a)	Define distribution factor.	[2]
b)	What is the carry over factor of a bending member when the far end is (i) hinged (ii) fixed.	[3]
c)	What are the basic assumptions made in slope deflection method?	[2]
d)	Name the different types of arches as per structure configuration and determine SI of fixed arch.	[3]
e)	What is Substitute frame method, when this method will be used?	[2]
f)	Write the assumptions made in portal method.	[3]
g)	Discuss the properties of stiffness matrix.	[2]
h)	Develop flexibility matrix for the beam shown in Figure 1.	[3]
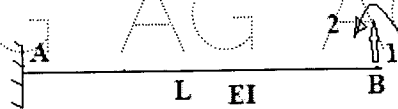
figure 1

i)	State Castigliano's First theorem.	[2]
j)	Draw ILD for Reaction at prop of a Propped Cantilever beam.	[3]

PART - B

(50 Marks)

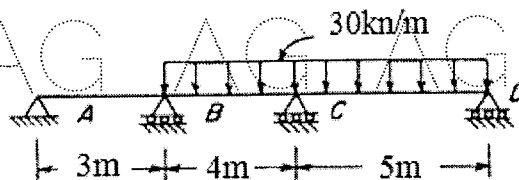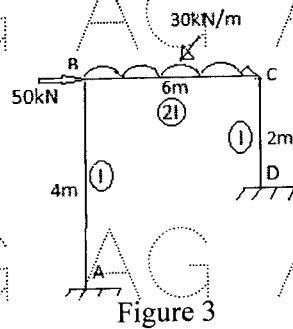2. Analyze the continuous beam shown in Figure 2 using Kani's method. [10]
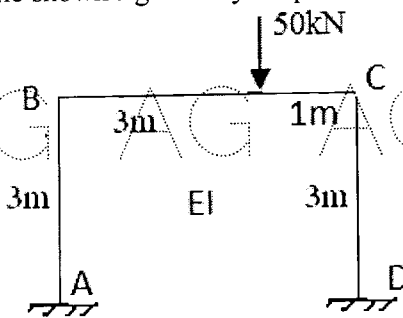
Figure 2

OR

3. Analyze the portal frame shown in figure 3 by Moment Distribution method and draw BMD. [10]

30kN/m

B

50kN

6m

(2I)

C

(I) 2m

(I)

4m

D

A

Figure 3

4. Analyze the portal frame shown figure 4 by Slope-Deflection method. [10]

50kN

B

3m

1m

C

3m

EI

3m

A

D

Figure 4

OR

5. A parabolic two hinged arch has a span of 24m and a rise of 4m is subjected to 100kN and 150kN acting left and right quarter span respectively. Calculate the horizontal thrust and also calculate the bending moment at the loaded points. [10]

6. Determine the approximate values of moment, shear and axial force in each member of frame as shown in figure 5 using portal method. [10]

30kN

50kN

3m

4m

|— 4m —|— 4m —|
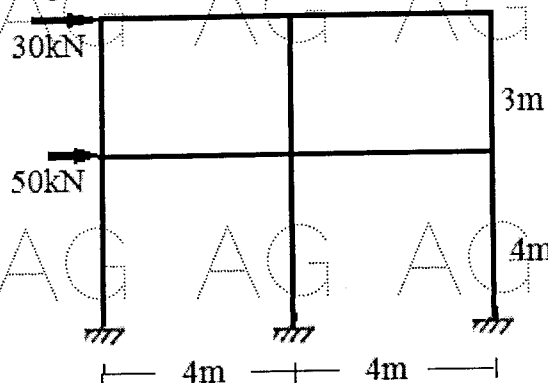
Figure 5

OR

7. Discuss about factor method and substitute frame method analysis of frames for loads. [10]

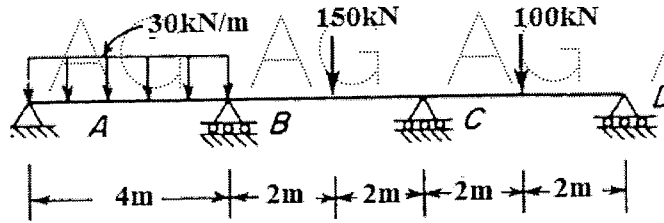8. Analyse the continuous beam shown in Figure 6 using Flexibility method. [10]

figure 6

OR

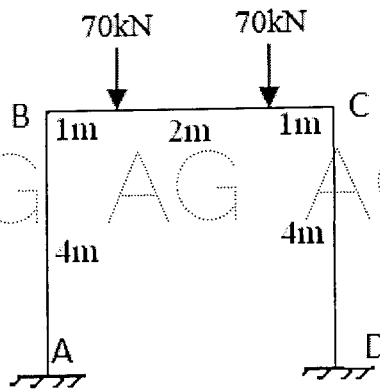9. Analyse the frame shown in figure 7 by matrix stiffness method. Flexural rigidity is EI.
[10]

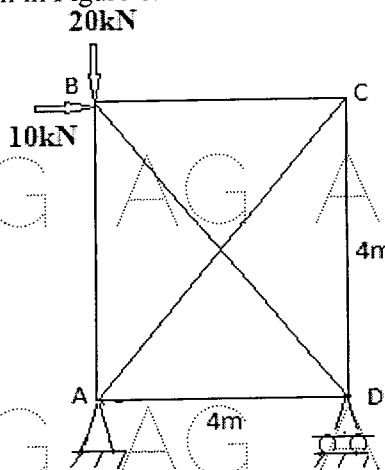Figure 7

10. Analyze the truss shown in Figure 8. [10]

Figure 8

OR

11.a) State Muller-Breslau's Principle, explain how to draw Qualitative Influence Lines for Statically Indeterminate Structures.

b) Draw qualitative ILD for vertical reaction at each supports of a three span continuous beam. [5+5]

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