

# CBCS SCHEME

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15CV52

## Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019 Analysis of Indeterminate Structures

Time: 3 hrs.

Max. Marks: 80

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 Analyze the continuous beam shown in Fig.Q.1 by slope deflection method and draw BMD. (16 Marks)

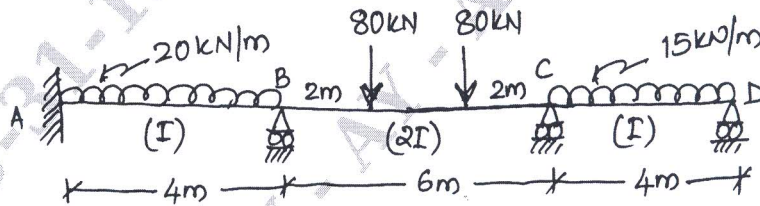


Fig.Q.1

OR

- 2 Analyze the rigid frame shown in Fig.Q.2 by slope deflection method and draw BMD. (16 Marks)

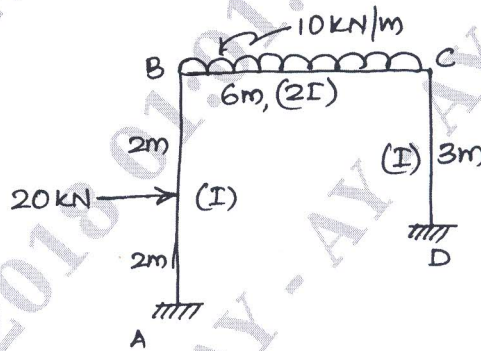


Fig.Q.2

### Module-2

- 3 Analyze and draw BMD for the continuous beam shown in Fig.Q.3 by moment distribution method if support 'B' sinks by 30mm and support 'C' sinks by 20mm. Take  $EI = 24,000 \text{ kNm}^2$ . (16 Marks)

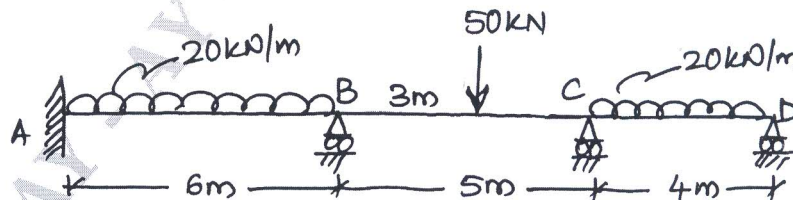


Fig.Q.3

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 4 Analyze the rigid frame shown in Fig.Q.4 by moment distribution method and draw BMD. (16 Marks)

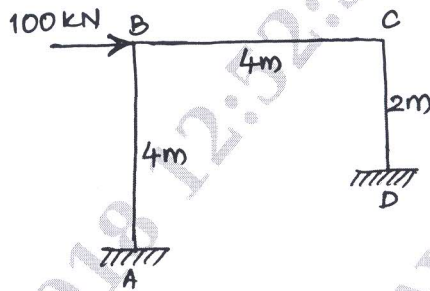


Fig.Q.4

**Module-3**

- 5 Analyze and draw BMD for the continuous beam shown in Fig.Q.5 by Kani's method, if support 'B' sinks by 10mm and  $E = 2 \times 10^5 \text{ N/mm}^2$ ,  $I = 1.2 \times 10^4 \text{ m}^4$ . (16 Marks)

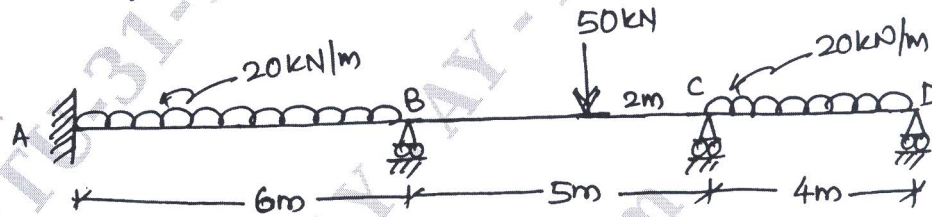


Fig.Q.5

OR

- 6 Analyze the rigid frame shown in Fig.Q.6 by Kani's method and draw BMD. (16 Marks)

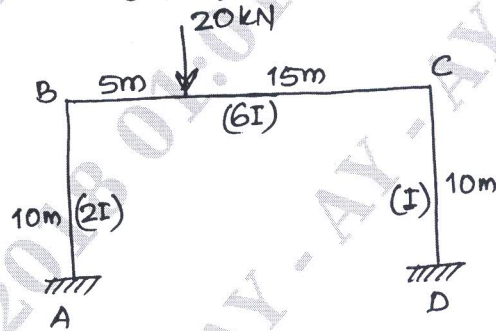


Fig.Q.6

**Module-4**

- 7 Analyze the continuous beam shown in Fig.Q.7 by matrix flexibility method using system approach and draw BMD. Take moments as redundants. (16 Marks)

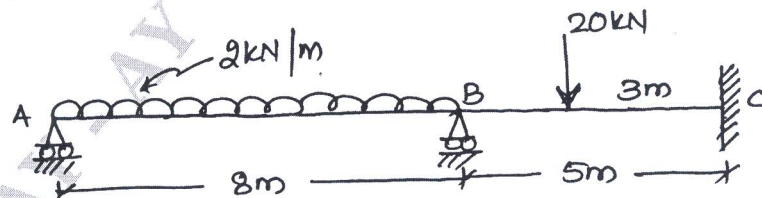


Fig.Q.7

OR

- 8 Analyze the pin-jointed truss shown in Fig.Q.8 by matrix flexibility method of system approach and determine forces in all the members. Take force in member 'OA' as redundant. (16 Marks)

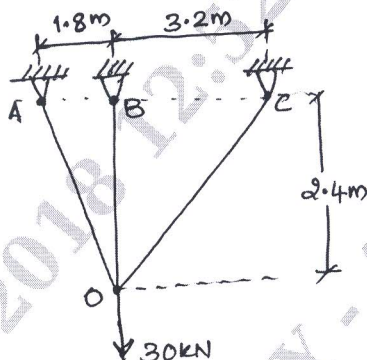


Fig.Q.8

Module-5

- 9 Analyze the rigid frame shown in Fig.Q.9 by matrix stiffness method and draw BMD. (16 Marks)

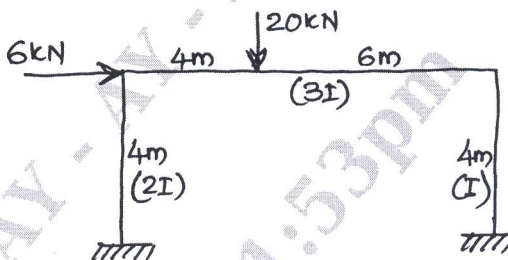


Fig.Q.9

OR

- 10 Analyze the pinjointed frame shown in Fig.Q.10 by matrix stiffness method and find forces in all the members. The numbers in parentheses are the C/S areas of members in sqmm. (Take E = constant). (16 Marks)

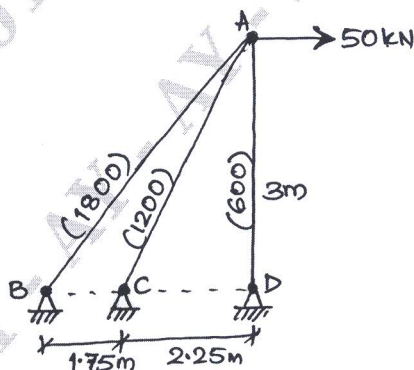


Fig.Q.10

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