F 3177   (Pages : 4)   Reg. No..............................

Name...................................

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Fifth Semester

Branch : Civil Engineering

STRUCTURAL ANALYSIS—II (C)

(Old Scheme—Prior to 2010 Admissions)

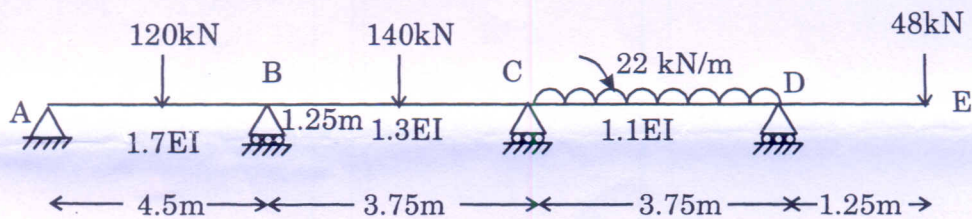[Supplementary/Mercy Chance]

Time : Three Hours   Maximum : 100 Marks

*Answer **all** questions.*
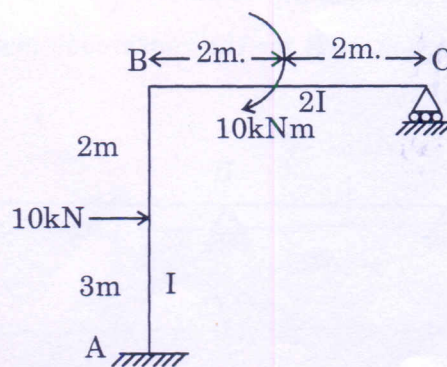*Missing data may be suitably assumed.*
Each full question carries 20 marks.

1. Analyse the three-span continuous beam ABCD by applying the theorem of three moments. Draw the SFD and BMD.
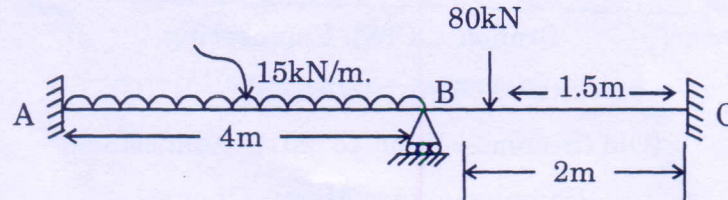

Or

2. Analyse the frame by Method of Consistent Deformation. Draw the axial force, SFD and BMD.
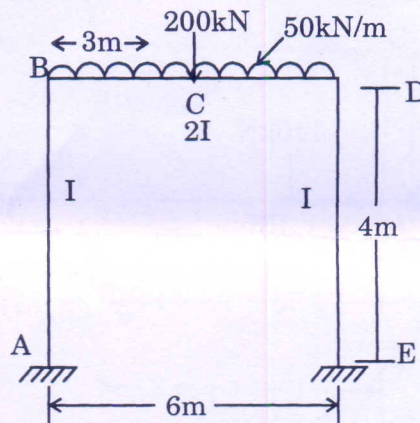
3. Analyse the two-span prismatic continuous beam by Slope-deflection method. Draw SFD and BMD. Assume Constant flexural rigidity.
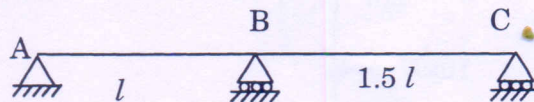

Or

4. Analyse the portal frame using moment distribution method. Draw SFD and BMD.

5. (a) Explain the maximum principal stress theory.

   (b) Draw the ILD for reaction at B for the continuous beam ABC shown in figure. Mark the ordinates at L/4 intervals.
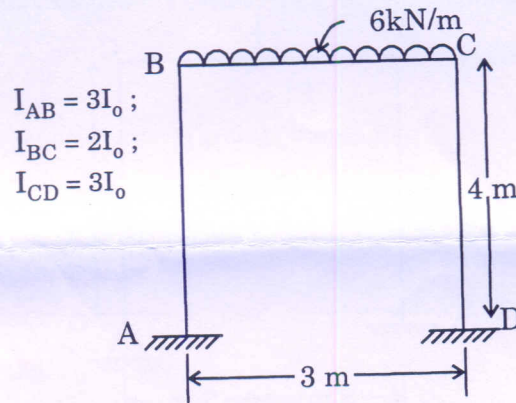

Or

6. (a) Explain maximum shear stress theory.

(b) Determine the ordinates of influence lines for reaction at A for the beam given below at 1 m interval and draw the ILD.
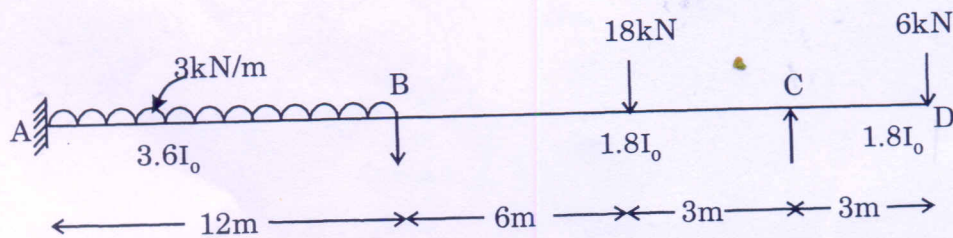
B . C
A
|← 4m →|← 5m →|
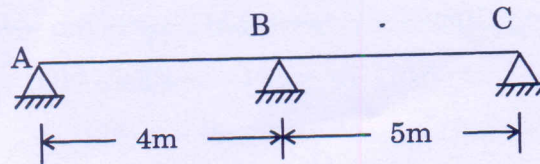
7. Analyse the given frame using matrix stiffness method :

6kN/m
B ⌒⌒⌒⌒⌒ C
$I_{AB} = 3I_o$;
$I_{BC} = 2I_o$;
$I_{CD} = 3I_o$
4 m
A 　　　　　　　D
|← 3 m →|

Or

8. Analyse the beam by stiffness matrix method.

18kN　　　　6kN
3kN/m
　　　　　B　　　↓　　　C　　↓ D
A
3.6I_o　　　　　　　1.8I_o　　1.8I_o
|← 12m →|← 6m →|← 3m →|← 3m →|

Turn over

9. Analyse the Continuous beam by flexibility method.

16kN/m.

16kN

A EI = 3 B

C

←——————10m——————→←— 5m —←— 5m —→

EI = 1
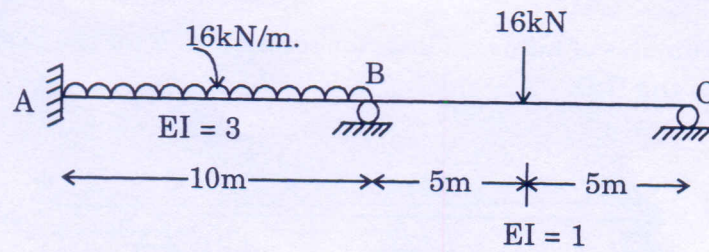
Or

10. Analyse the frame by matrix flexibility method.

100kN

50kN→ B

C

EI = 2

EI = 1   EI = 1

3 m

A

D

←— 3 m —→←— 3 m —→

(5 × 20 = 100 marks)