T.E./Insem.-104

T.E. (Civil)

STRUCTURAL ANALYSIS - II

(2012 Pattern) (Semester - I)

Time :1 Hour]

[Max. Marks : 30

Instructions to the candidates:
1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.*
2) *Figures to the right indicate full marks.*
3) *Use of non-programmable electronic scientific calculator is allowed.*
4) *Assume suitable data, if necessary.*

Q1) Analyse the beam shown in the figure 1 by Slope Deflection Method and draw SFD and BMD. Support B sinks by 4mm, $EI = 18 \times 10^{12}$ N/mm². **[10]**
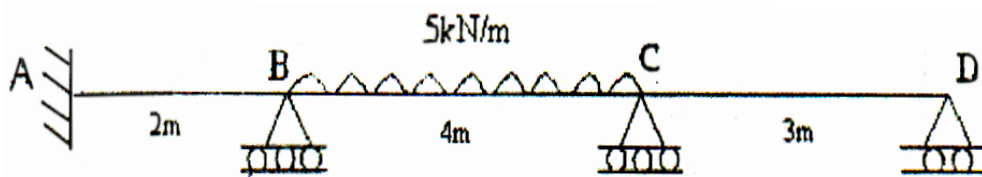

Figure 1

OR

Q2) Find the reactions and end moments of the frame shown in figure 2 by Slope Deflection method and draw SFD and BMD. Take constant EI **[10]**
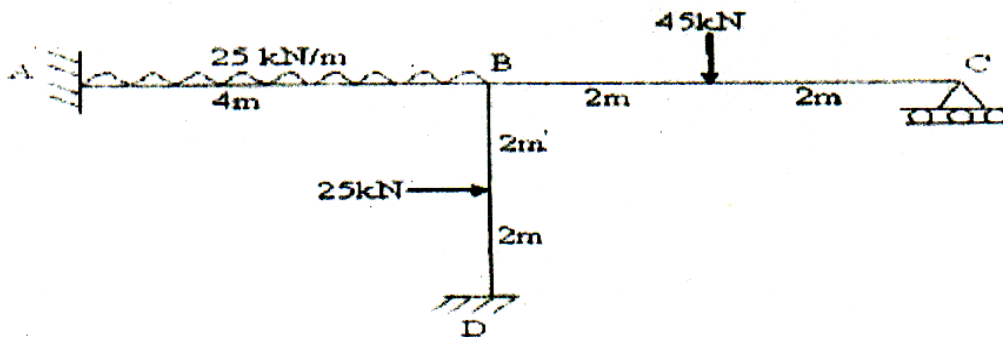

Figure 2

P.T.O.

Q3) A continuous beam ABC is fixed at A and supported on rollers at B and C such that AB = BC = 6m, I_{AB} = 31 and I_{BC} = 21. The loading on the beam consist of uniformly distributed load of 40kN/m over the span AB and a Concentrated load of 100 kN at the centre of the span BC. Using Moment Distribution, calculate the support moments and draw SFD and BMD. **[10]**

OR

Q4) Analyse the frame as shown in the figure 3 using Moment Distribution Method and draw SFD and BMD. **[10]**
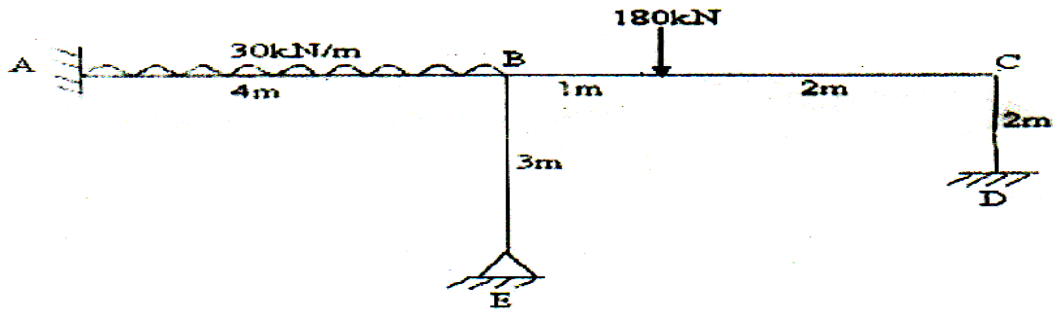

Figure 3

Q5) Analyse the beam shown in the figure 4 by flexibility method if support B sinks by 2.2mm. Take EI = 40×10^{11} N/mm². **[10]**
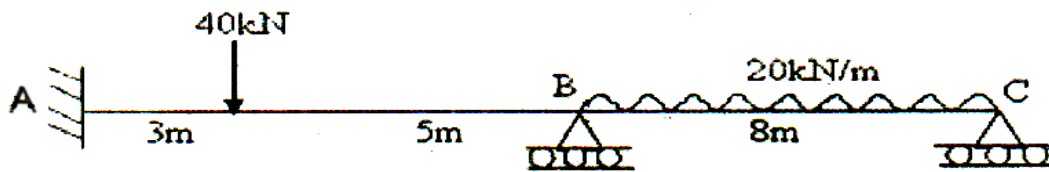

Figure 4

OR

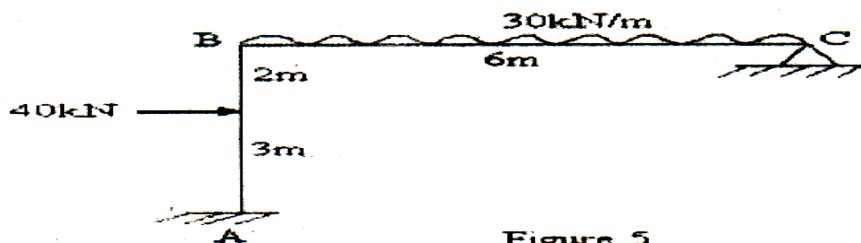*Q6)* Analyse the frame shown in the figure by flexibility method. Take constant EI. **[10]**

Figure 5

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