

APR-26/SE/Insem-244

S.E. (Civil) (Insem)

STRUCTURAL ANALYSIS

(2019 Pattern) (Semester - IV) (201011)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Answer Q1 or Q2 and Q3 or Q4.
- 2) Neat sketches must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.
- 5) Use of electronic pocket calculator is allowed.
- 6) Use of cell phone is prohibited in the examination hall.

- Q1) a) Explain in brief classification of structure. [4]
 b) State and explain static indeterminacy of structures with sketch. [4]
 c) Analyze the continuous beam by strain energy method as shown in Fig. 1 c. [7]

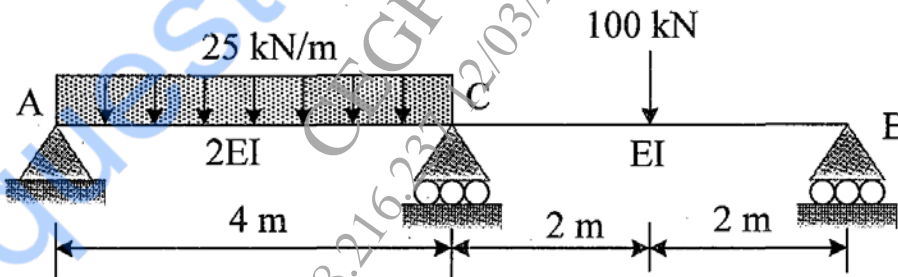


Fig. 1 c

OR

- Q2) a) State the classification of structure with example. [4]
 b) Find static and kinematic indeterminacy for the structure as shown in Fig. 2 b. [4]

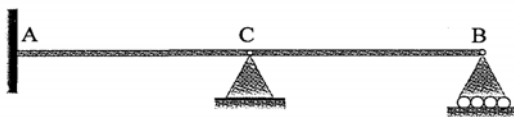


Fig. 2 b (i)

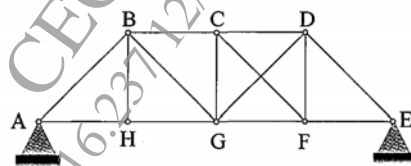


Fig. 2 b (ii)

- c) Analyze the fixed beam by strain energy method as shown in Fig. 2 c. [7]

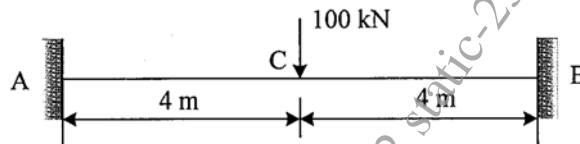


Fig. 2 c

- Q3) a) Explain in brief unit load method for the analysis of indeterminate trusses. [4]
 b) Explain portal method for approximate analysis of frame. [4]
 c) Analyze the truss as shown in Fig. 3 c and find final forces in all members assuming uniform AE. [7]

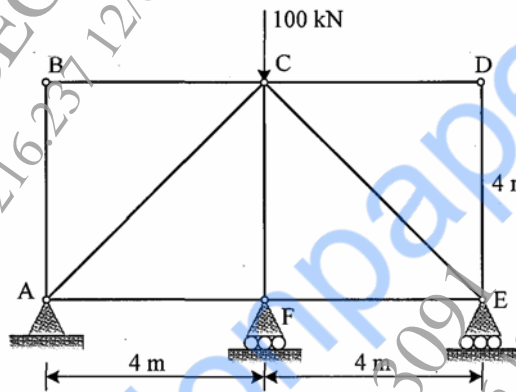


Fig. 3 c

OR

- Q4) a) Explain in brief external and internal indeterminate trusses with suitable example. [4]
 b) Explain cantilever method for approximate analysis of frame. [4]
 c) Analyze the frame as shown in Fig. 4 c by portal method. [7]

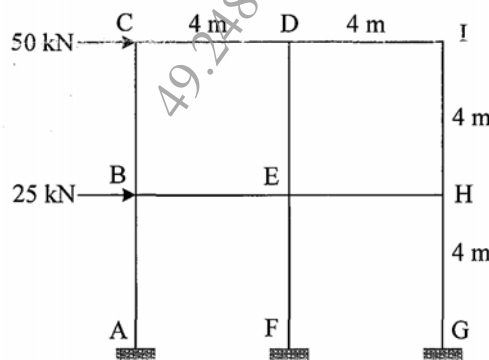


Fig. 4 c

X

X

X