Code No: R22016   **R10**   SET - 1

II B. Tech II Semester Supplementary Examinations, November-2017
STRUCTURAL ANALYSIS – I
(Civil Engineering)

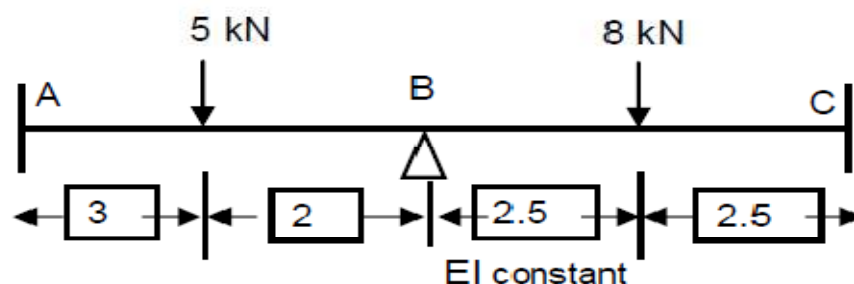Time: 3 hours   Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. Analyze the prop cantilever beam of span L subjected to udl w/m   (15M)
    throughout the span and draw S.F.D. and B.M.D.

2. Find the fixed end moments for a fixed beam of span 8 m subjected to a   (15M)
    concentrated clockwise moment of 20 kNm at 3 m from the left end.

3. A two span continuous beam ABC is fixed at A and C and is continuous over B.   (15M)
    The span AB=4.3m and spam BC=5.7m. The span AB carries a UDL of 55kN/m
    and span BC carries a central point load of 42 kN. EI is constant for the whole
    beam. Find the moments and reactions at all supports and draw the bending
    moment diagram using Clapeyron's theorem.

4. A beam ABC, 10m long, fixed at ends A and B is continuous over joint B and is   (15M)
    loaded as shown in Fig. Using the slope deflection method, compute the end
    moments and plot the bending moment diagram. Also, sketch the deflected shape
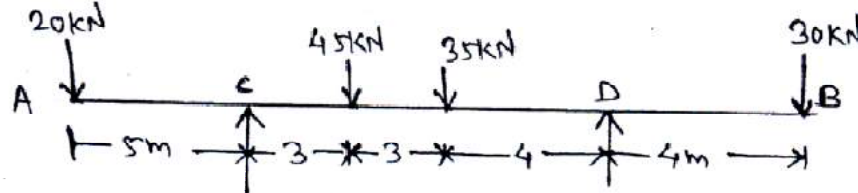   of the beam. The beam has constant EI for both the spans

5. A portal frame ABCD is fixed at supports A&D. The span AD=4.5m and the   (15M)
    height AB=CD=3.5m. It carries a UDL of 25 kN m on BC. Analyze the frame by
    strain energy method and draw bending moment diagram. Take EI=1

6. A simply supported beam of span 10m carries a udl of 20 kN/m over its central 4m   (15M)
    length. With the help of influence line diagram, find the shear force at 3m from the
    left support

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7. A beam ACDB is as shown in fig. Find the reaction at support, S.F at 4 m from support C and B.M. at 4 m from support c using ILD   (15M)

8. Find the horizontal deflection of the joint D of the truss shown in the figure. The sectional areas of the members are as follows.   (15M)

Horizontal members - 1000 mm^2
Vertical members   - 1200 mm^2
Inclemd member   - 2000 mm^2
Take E = 200kN/mm^2