

Code No: RT22016

R13

SET - 1

II B. Tech II Semester Supplementary Examinations, Dec/Jan-2015-16
STRUCTURAL ANALYSIS-I
(Civil Engineering)

Time: 3 hours

Max. Marks: 70

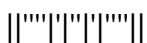
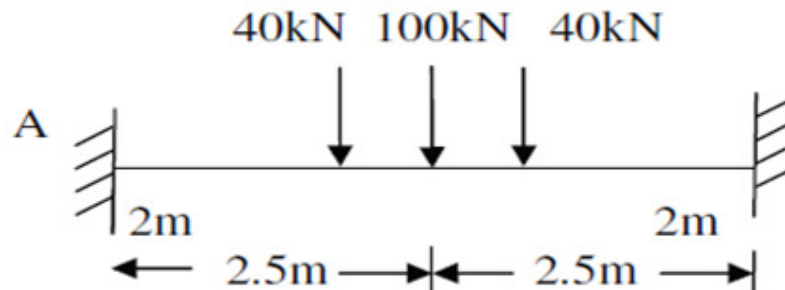
- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

PART -A

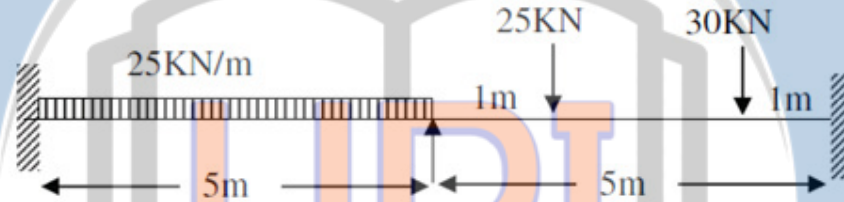
1. a) A propped cantilever is subjected to uniformly distributed load W/m . What is the indeterminate moment at the support?
b) How fixed beams can be statically determinate?
c) What are the factors that affect bending moment in the continuous beam due to support settlements?
d) Give two examples each of Statically Indeterminate and Kinematic Indeterminate structures. Calculate degree of indeterminacy in each of the cases.
e) Define strain energy and complimentary strain energy.
f) What are the positions of a single load for maximum bending moment at section and absolute bending moment in the span?

PART -B

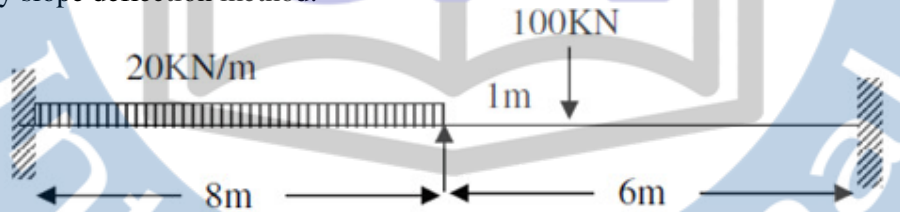
2. A cantilever of 6m length carries an U.D.L of 12 kN/m over the full span. If the free end is supported by a prop, find the reaction at the prop and also draw the S.F. and B.M. diagrams
3. A fixed beam is shown in below figure. Solve the beam and also draw the B M and S F Diagrams.



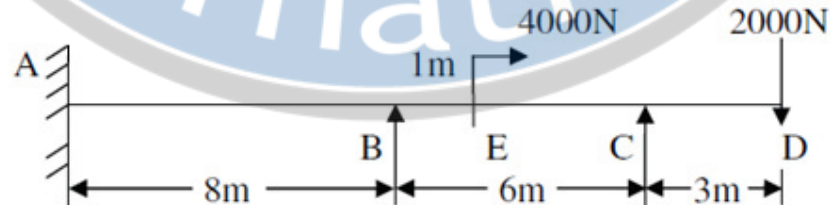
4. Solve the continuous beam in below figure by using theorem of three moments.



5. Evaluate the bending moment and shear force diagrams of beam in below figure by slope deflection method.



6. A continuous beam of constant moment of Inertia is loaded as shown in below Figure. Find support moments. Use Strain Energy method.



7. A simply supported beam of span 8 meters is loaded with three concentrated loads of 5 kN, 10 kN and 15 kN at a distance 2m, 4m and 6m respectively from right hand end. It also carries a uniformly distributed load of 10 kN/m throughout the span. Find position and magnitude of maximum deflection and calculate Maximum Shear Force.