

Code No: RT22016

R13**SET - 1**

II B. Tech II Semester Supplementary Examinations, November -2018
STRUCTURAL ANALYSIS-I
(Civil Engineering)

Time: 3 hours

Max. Marks: 70

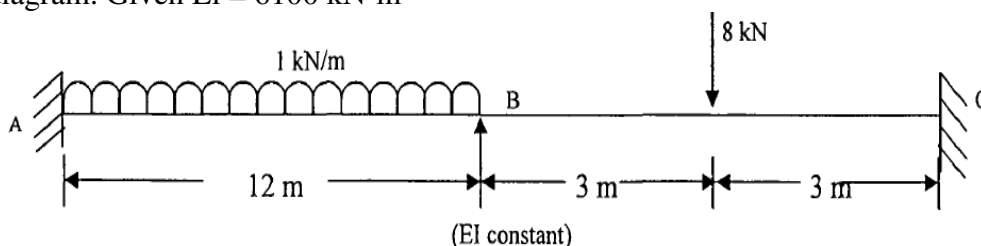
- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
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PART -A

1. a) What is static indeterminacy
b) What is point of inflexion
c) Define moment of inertia
d) Write the formula for deflection for a simply supported beam with point load at centre
e) Draw bending moment diagram for cantilever beam with UDL
f) Write about Focal length

PART -B

2. Find the maximum bending moment and locate the point of inflection for a propped cantilever beam of span 8 m due to a uniformly varying load, whose intensity is 10 kN/m at the fixed support and 2 kN/m at the simple support.
3. a) What are the assumptions made in slope-deflection method?
Write down the slope deflection equation for a fixed end support
b) How do you account for sway in slope deflection method for portal frames?
4. a) Derive Castigliano's first theorem
b) State Muller-Breslau principle
5. A continuous beam is shown in Figure. The support B sinks by 12 mm. Using slope deflection method, calculate the support moment and draw bending moment diagram. Given $EI = 6100 \text{ kN-m}^2$

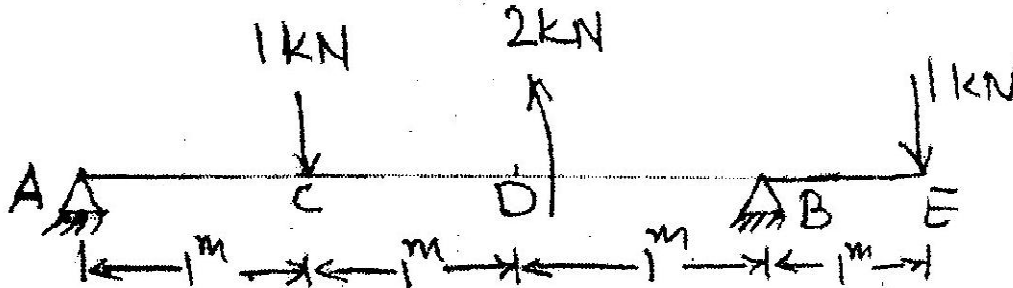


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6. Draw shear force and bending moment for a beam given below



7. A single rolling load of 100 kN moves on a girder of span 20m. (a) Construct the influence lines for (i) shear force and (ii) bending moment for a section 5m from the left support. (b) Construct the influence lines for points at which the maximum shears and maximum bending moment develop. Determine these values