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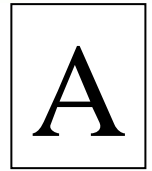
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**SNS College of Technology, Coimbatore-35  
(Autonomous)**



**B.E Internal Assessment Examination II  
Academic Year 2022-2023(Odd)  
III Semester  
19CET203-Mechanics of Solids**



**Time: 1<sup>1/2</sup> Hours**

**Maximum Marks: 50**

**Answer All Questions**

**PART – A (5 X 2 = 10)**

CO Blooms

- |  |   |     |   |
|--|---|-----|---|
| 1. Define point of contra flexure?.  | 2 | CO2 | R |
| 2. Define shear force and bending moment?  | 2 | CO2 | R |
| 3. State the different types of supports.  | 2 | CO2 | U |
| 4. What are the methods for finding out the slope and deflection at a section?   | 2 | CO3 | R |
| 5. Discuss about the maximum deflection in a simply supported beam Subjected to uniformly distributed load over the entire span? | 2 | CO3 | R |

**PART – B (13+13+14 = 40 Marks)**

- |   |    |     |   |
|---|----|-----|---|
| 6. (a) A simply supported beam of span 10 carries a concentrated load of 10 kN at 2 m from the left support and a UDL of 4 kN/m over the entire length. Sketch the shearing force and bending moment diagrams for the beam. | 13 | CO2 | U |
|---|----|-----|---|

(or)

- |   |    |     |   |
|---|----|-----|---|
| (b) A cantilever 1.5m long is loaded with a uniformly distribution load of 2 kN/m run over a length of 1.25m from the free end it also carries a point load of 3kN at a distance of 0.25m from the free end. Draw the shear force and bending moment diagram of the cantilever. | 13 | CO2 | U |
|---|----|-----|---|

- |   |    |     |   |
|---|----|-----|---|
| 7. (a) A Simply supported beam 6 m span carries UDL of 20 KN/m for left half of span and two point loads of 25 KN and 35 KN at 4 m and 5 m from left support. Find maximum SF and BM and their location drawing SF and BM diagrams. | 13 | CO2 | R |
|---|----|-----|---|

(or)

- |   |    |     |   |
|---|----|-----|---|
| (b) A beam of size 150 mm wide, 250 mm deep carries a uniformly distributed load of w kN/m over entire span of 4 m. A concentrated load 1 kN is acting at a distance of 1.2 m from the left support. If the bending stress at a section 1.8m from the left support is not to exceed 3.25 N/mm <sup>2</sup> find the load w. | 13 | CO2 | R |
|---|----|-----|---|

8. A beam AB of length 8 m is simply supported at its ends and carries two point loads of 50 kN and 40 kN at a distance of 2 m and 5 m respectively from left support A. Determine, deflection under each load, maximum deflection and the position at which maximum deflection occurs. Take  $E = 2 \times 10^5 \text{ N/mm}^2$  and  $I = 8.5 \times 10^6 \text{ mm}^4$ . 14 CO3 R

(or)

A Simply supported beam of length 6 m carries a UDL of 20KN/m throughout its length and a point of 30 KN at 2 m from the right support. Draw the shear force and bending moment diagram. Also find the position and magnitude of maximum Bending moment 14 CO2 R

Prepared By

Verified By

HOD