SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA

SEMESTER END EXAMINATIONS (REGULAR), MAY-2016

B.ARCH, I YEAR I SEMESTER (CE)

THEORY OF STRUCTURES (TS 2)

Maximum Marks – 100 **Time – 3.00 Hours**

a) Answer any Four questions out of 1 to 7 questions.
b) Question No.8 is compulsory and answer any four out of six sub-questions.
c) Any missing data can be suitably assumed and stated.
d) Scientific calculator is allowed.

Q1. a) What is Shear force and Bending moment at section, explain with neat sketches. **(8M)**

b) List and explain different types of supports, where it is used. **(12M)**

Q2. a) Explain different types of beams with neat sketches **(15M)**

b) Write the boundary conditions of **(5M)**
i) Cantilever beam ii) Simply supported beam

Q3. a) Define Bulk modulus of regidity and Youngs modulus of regidity **(5M)**

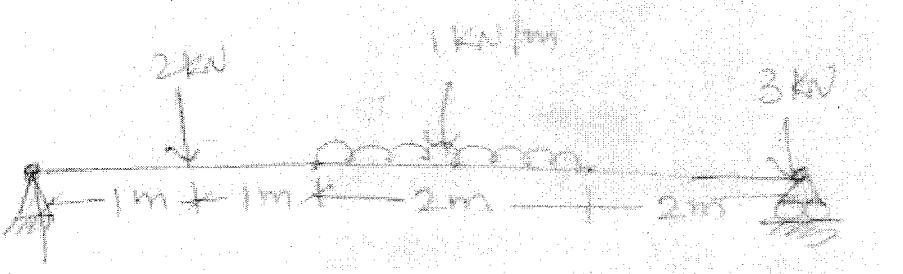
b) Define composite bar, How will you find the stresses and load carried by each member of a composite bar. **(15M)**

Q4 A simply supported timber beam of span 5m carries an UDL of 5kN/m and provided a Point load of 5kN placed at 2m from left support. If the permissible stress in timber beam is $3N/mm^2$,design suitable section of beam assuming b=0.5d **(20M)**

Q5 Draw the stress-strain graph for Fe250 grade steel (Mild steel) and explain about all the salient points in detail. **(20M)**

Q6 a) Calculate the Shear force and Bending moment of the simply supported beam as shown in fig-1 **(10M)**

P.T.O



b) Draw shear force and bending moment diagrams neatly. **(10M)**

Q7 a) Define Bulk modulus and Youngs modulus of rigidity **(5M)**

b) Derive the expression of Youngs modulus of rigidity in terms of Bulk modulus of rigidity. **(15M)**

Q8 Answer any four of the following: **(4x5=20M)**

a) What are the types of loads acting on to the structures explain.

b) Write in detail about types of beam

c) Discuss what do you understand the theory of simple bending

d) Define thermal stresses and thermal strains for a composite material

e) A timber beam of span L simply supported one Carries an UDL of 2kN/m over its entire spam. Calculate the Max sheer force that the support has to carry

f) Distinguish between timber beam and Aluminum beam according to the Structural properties.

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