SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA

SEMESTER END EXAMINATIONS (REGULAR), NOVEMBER-2015

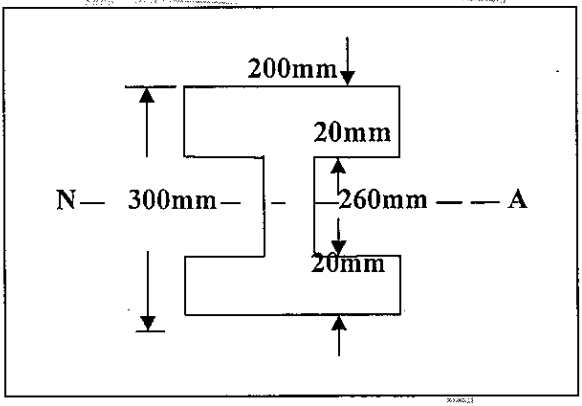
B.ARCH, II YEAR III SEMESTER

THEORY OF STRUCTURES (TS 3)

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

a) Answer any Four out of 1 to 7 questions.
b) Question No. 8 is compulsory out of six, four sub-questions to be answered.
c) Use of Scientific calculator is allowed.

Q1. A Steel I – Section Shown in fig(1) is 4m long and is simply supported at the ends. If the Safe stress in tension for the beam is 36 N/mm². Determine the permissible UDL acting on the whole span of the beam. **(20M)**



Q2. (a) What are the assumptions made in the theory of simple bending. **(12M)**
(b) What are the loads to be considered in the design of RCC Elements. **(8M)**

Q3. (a) What is the function of lintels.
(b) Explain types of lintels and their uses according to its strength. **(10x2= 20M)**

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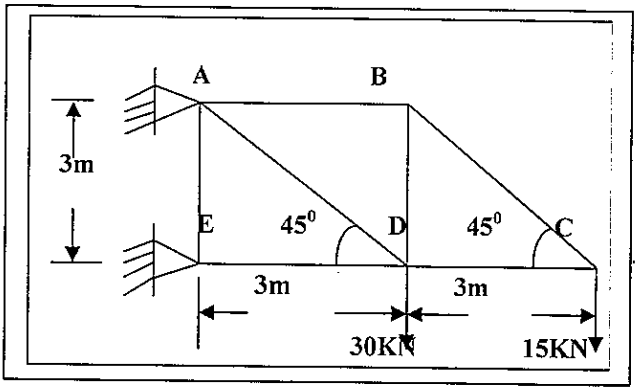
Q4. Determine analytically the magnitude and nature of forces in all the members of the truss shown below. **(20M)**



Q5. c) Design sunshade of 600mm wide. It is monolithically constructed with lintel at the same level, over an opening of 1.5m in a wall of 230mm thick. The height of the wall above the lintel is 2m. The live load on the sunshade is 2.0 KN/m. Use M20 grade concrete and Fe415 grade steel. **(2x10= 20M)**

d) Draw longitudinal and Cross section details of reinforcement neatly.

Q6. a) Explain failures of riveted Joints with neat sketches. **(10x2= 20M)**

b) A mild steel strap 10mm thick and 250mm wide is wound round on a bullock cart wheel of 1.2m radius. Determine the bending moment and Maximum bending stress developed in the strap, take E= 2.1 x 10^5 N/mm^2 for mild steel strap.

Q7. A Double cover butt Joint is used to connect plates 16mm thick. Design the riveted Joint and determine its efficiency. **(20M)**

Q8. Write short notes on any four questions. **(4x5= 20M)**

a) Types of riveted Joints.
b) Grades of Concrete and Steel.
c) Find the Modules of section of circular beam of diameter 200mm.
d) Vault and Arch structural systems.
e) Cover to reinforcement in structural members.
f) Elements of Arch with neat sketch.

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