

SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA
SEMESTER END EXAMINATIONS (REGULAR) APRIL - MAY - 2017

B.ARCH I YEAR II SEMESTER

INTRODUCTION TO STRUCTURES (10110205)

Maximum Marks – 50

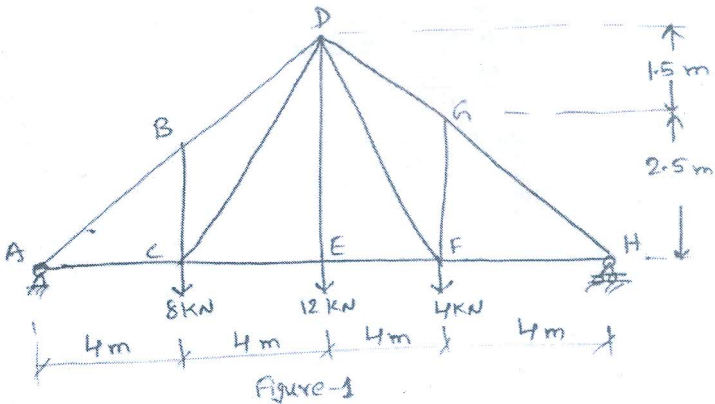
Time – 2.00 Hours

- a) Answer any Two questions out of 1 to 4 questions.
b) Question No.5 is compulsory and answer any four out of six sub-questions.
c) Scientific Calculator is allowed.

- Q1. a) Four men pull a tree in the East, South East, South West and North West directions with forces 200N, 300N, 150N and 350N respectively. Find the Resultant force and its direction. (10M)
- b) Explain about system of forces. (5M)
- Q2. Draw stress – strain diagram for a mild steel specimen subjected to a tensile force and explain all salient points. (15M)
- Q3. a) A steel rod of 25mm diameter and 600mm long is subjected to an axial pull of 40 KN. Find (10M)
- i) Intensity of stress
ii) Elongation of the rod
Take $E = 2 \times 10^5 \text{ N/mm}^2$
- b) Explain the physical properties of bricks. (5M)

P.T.O

Q4. Determine the forces in the members BD and CD (15M) of the truss shown in figure.1 by method of sections.



Q5. Write short notes on any FOUR of the following:

(4x5=20M)

- A body is acted upon by an upward force of 200N and a horizontal force of 400N. Find the magnitude and direction of resultant.
- State Lamie's theorem with a neat sketch.
- Define stress, strain and poisson's ratio.
- A mild steel rod of 10mm diameter and 300mm length elongates 0.18 mm under an axial pull of 10 KN. Determine Young's modulus of the material.
- Define linear strain and lateral strain.
- Explain different properties of concrete.
