Total number of printed pages–4

43 (1) B. Arch 1·5

2017

STRUCTURE-I

Paper : ENG-1·5

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* State Lami's Theorem. 5

   (b) A weight of 400 *kN* is supported by two chains as shown in *Fig.* 1. Determine the forces induced in each chain and state whether these forces are tensile or compressive. 15

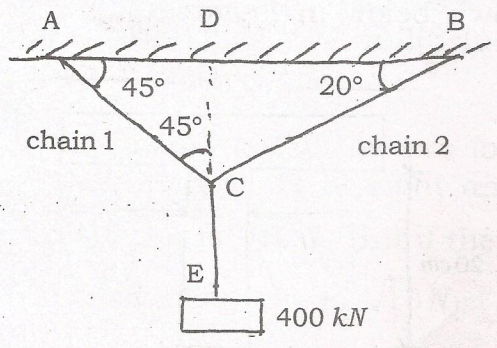

Fig .1

Contd.

2. The *Figure* 2 shows a truss consisting of steel members each having length $3m$. Determine forces in each member. 20

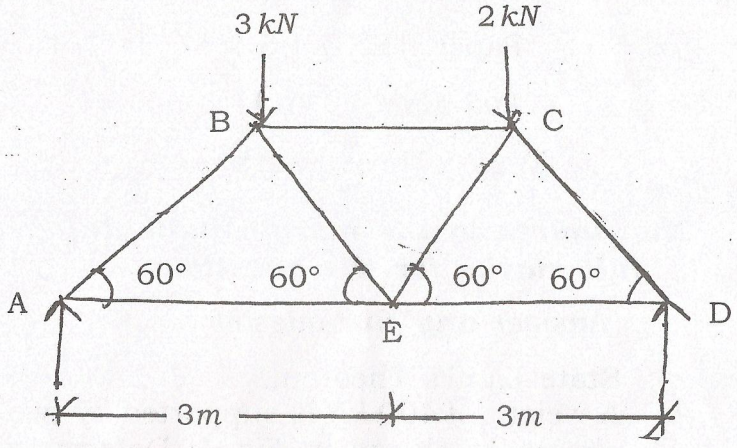

Figure – 2

3. Determine Moment of Inertia of the section shown below in *Figure* 3. 20

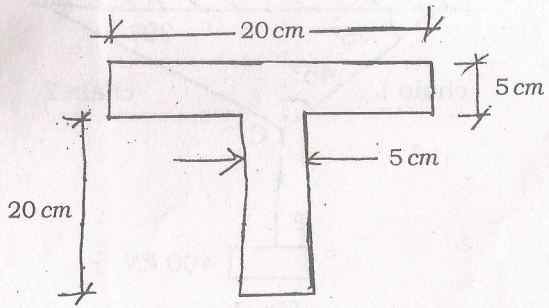

Figure – 3

4. Find the position of centre of gravity of the circular plate shown in *Fig.* 4. 20

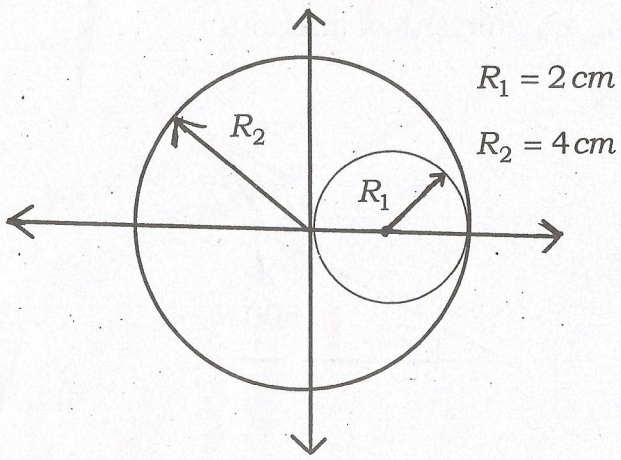

Fig. – 4

5. *(a)* What is equilibrium of forces? What are the principles of equilibrium of forces? 5

(b) Find the magnitude of the two forces, such that if they act at right angles, their resultant is $\sqrt{10}N$. But if they act at 60° their resultant is $\sqrt{13}N$. 15

6. *(a)* Define force of friction. 5

(b) If a body of weight 500*N* just slide downwards when the surface is inclined at an angle of 30°, then find out the co-efficient of friction. 15