**Printed Pages : 3**

**AR-103**

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : **181105**

**Roll No.**

# B. Arch.

## (SEM. I) (ODD SEM.) THEORY EXAMINATION, 2014-15

## ARCHITECTURAL STRUCTURES - I

Time : **3** Hours] [Total Marks : **50**

**Note:** (1) Draw neat diagrams.
(2) Assume any missing data.
(3) Attempt any five questions.

**1** Define the following :

(i) Elastic and homogeneous material

(ii) Isotropic material

(iii) Poisson's ratio

(iv) Shear stress and shear strain

(v) Bulk modulus.

**2** Determine the resultant of the forces shown in the diagram below.

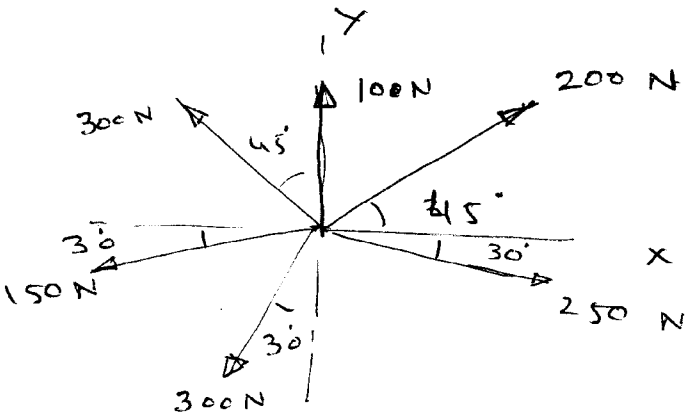


**Fig. 1**

**3** Define the following :

(i) Equilibrium of concentric forces at a point

(ii) Law of triangle of forces

(iii) Law of polygon of forces

(iv) Moment of couple

(v) Palor diagram.

**4** (a) Determine the CG of a triangle of base b and height h by first principle.

(b) Determine the CG of the triangle shown below.

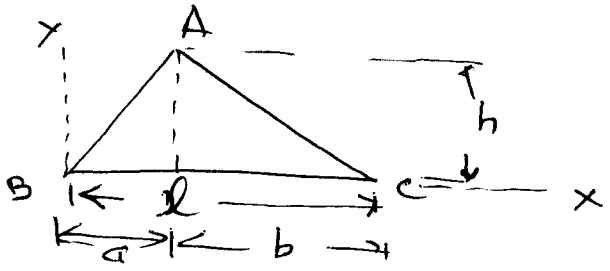


**Fig. 2**

5 (a) Define the Moment of Inertia (M.I.) of continuous areas.
(b) Determine the M.I. of semicircular lamina about the diameter.

6 Determine and draw B.M. and S.E., for the beam shown below :

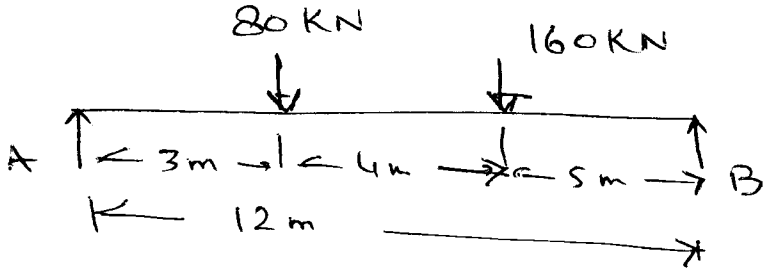


**Fig. 3**

7 Determine the resultant of parallel forces shown below by analysical or graphical method.

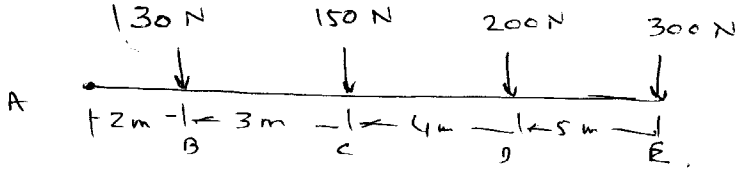


**Fig. 4**