Printed Pages : 4

NAR-103

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

PAPER ID : 181113

Roll No.

B. Arch.

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

ARCHITECTURAL STRUCTURES - I

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

Note : (1) Attempt any **five** questions.
(2) Assume any missing data.

1 (a) Write short notes on the following : **5**

(i) Elasticity

(ii) Axial stress and strain

(iii) Hook's law

(iv) Shear stress and shear strain

(v) Modulus of elasticity

(b) Draw stress strain curve for mild steel and mark yield point proportional limit, permanant set, break point. **5**

2 (a) Define the centre of Gravity of plane figures. **5**

(b) Find the centre of gravity of a channel section 100 mm × 50 mm × 15 mm. **5**

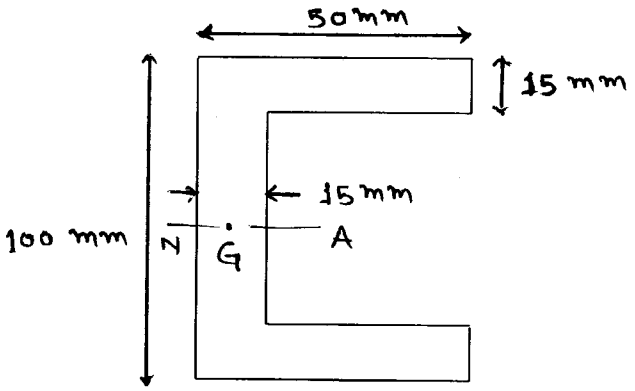

Fig.

3 (a) Define the theorem of perpendicular axis ? **3**

(b) Find the moment of inertia of a T-section with flange as 150 mm × 50 mm and web as 150 mm × 50 mm about X-X and Y-Y axis through the centre of gravity of the section. **7**

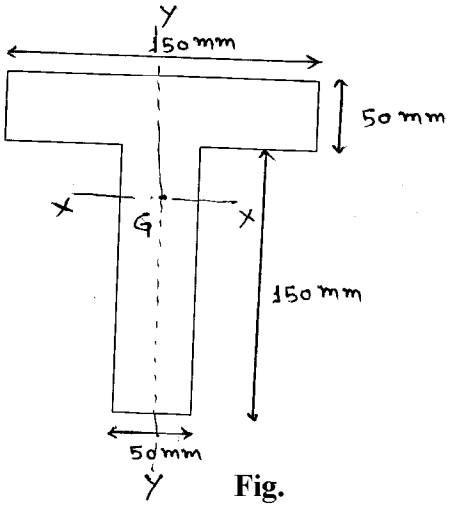

Fig.

4 A cantilever beam of 1.5 m span is loaded as shown in fig. Draw the shear force and bending moment diagrams. **10**

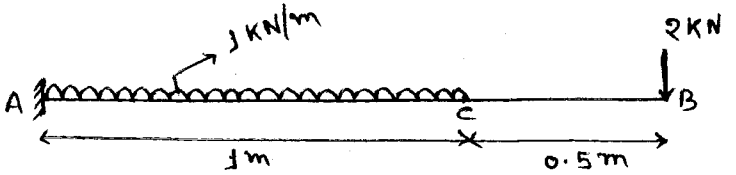

Fig.

5 Define the section modulus in the beams and draw the shear stresses distribution of the following section and mark shear centre in each section. **10**

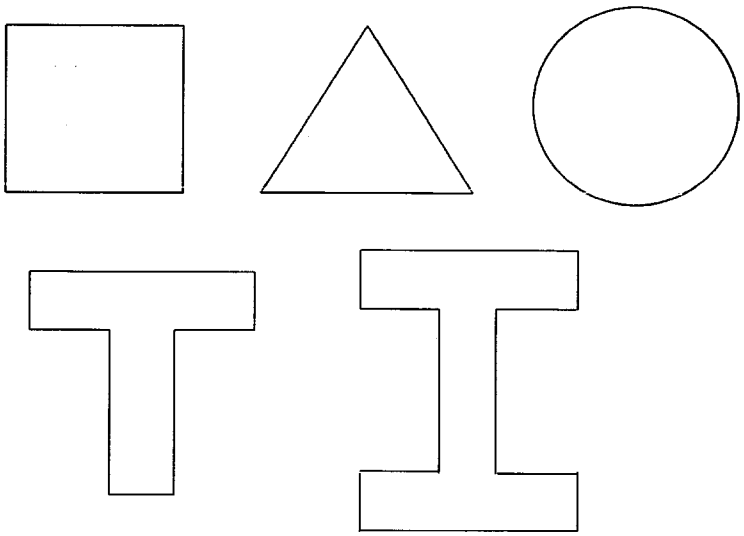

Fig.

6 Determine the centre of gravity and moment of inertia about the diameter AB of a semi circular lamina.

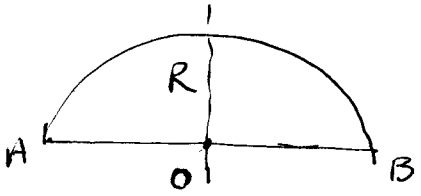

Fig.

7 Define middle third rule in direct and bending stress in the column section given below :

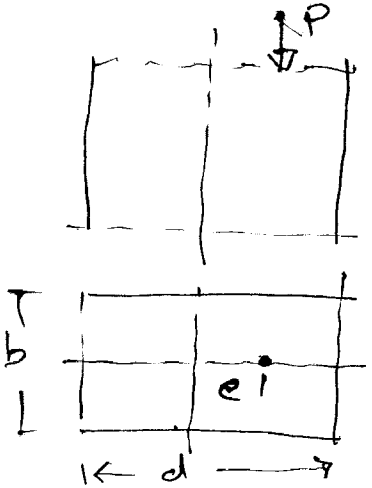

Fig.