* S D - 6 0 7 3 / 1 0 0 *

SD-6073

B. Arch. - I (Sem - II) Examination

May / June – 2011

Structural Design & Systems - II

(New Course)

Time : **2** Hours] [Total Marks : **50**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. Arch. - 1 (Sem - 2)**

Name of the Subject :

☛ **Structural Design & Systems - 2 (New)**

☛Subject Code No. : **6 0 7 3** ☛Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Assume suitable data and specifically mention it.

(3) Figures to the right indicate full marks.

(4) Use of Nonprogrammable scientific calculator is permitted.

1 Explain following terms : **3**

(i) Shear force diagram.

(ii) Bending Moment diagram

(iii) Lateral strain.

2 Calculate stresses induced in Cast iron and steel if both the materials are subjected to load as shown in **fig. 1**. Modulus of Elasticity of cast iron is $1\times10^5\ N/mm^2$ and that of steel is $2\times10^5\ N/mm^2$. **7**

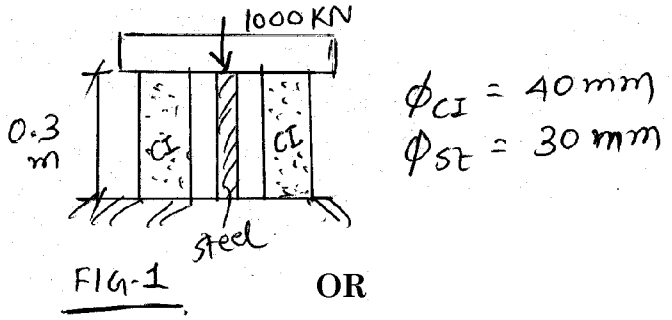


FIG-1

OR

2 Calculate stress in various parts of the rod shown in **fig. 2**. Also calculate overall deformation of the rod. Modulus of elasticity is $2\times10^5\ N/mm^2$, $\phi ab = 20\,mm$, $\phi bc = 40\,mm$, $\phi cd = 50\,mm$.

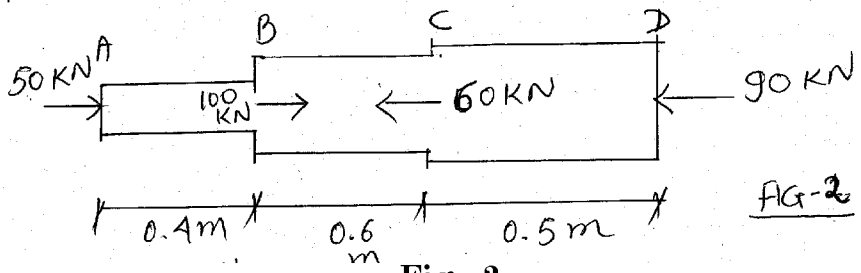
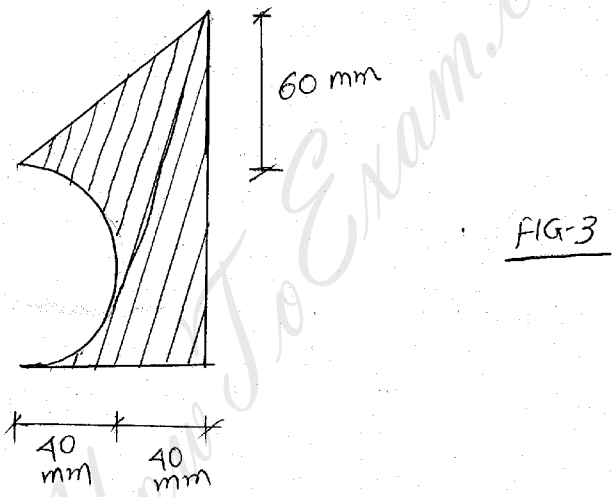
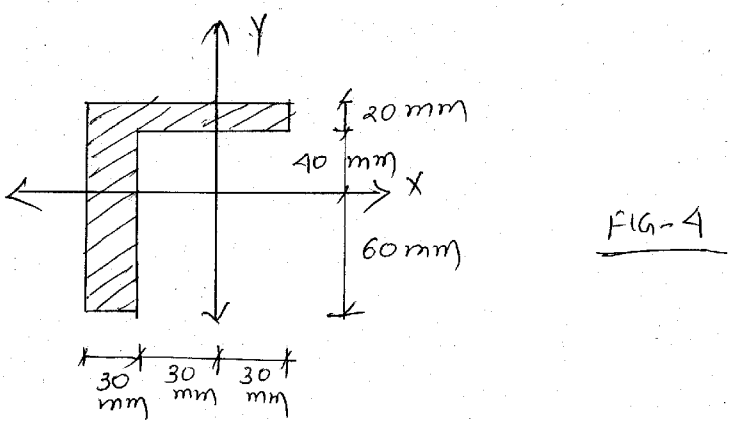


Fig. 2

3 Locate the Centroide, for the shaded area shown in **fig. 3**. **12**



4 Calculate MI about the given x-x and y-y axis, for the shaded area shown in **fig. 4**. **12**



5 (a) Calculate and Draw Shear force and Bending moment diagram for the Beam shown in **fig. 5**. **7**

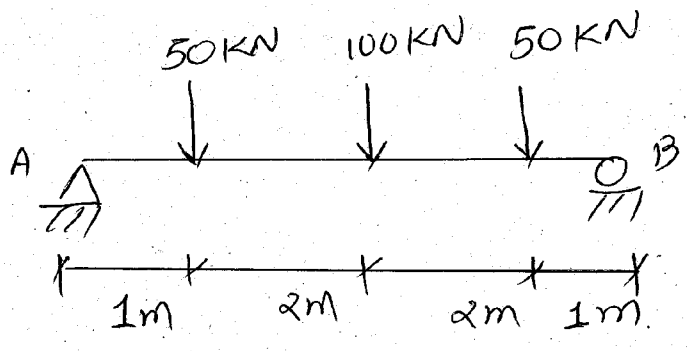


FIG-5

(b) Calculate and Draw Shear force and Bending moment diagram for the Beam shown in **fig. 6**. **6**

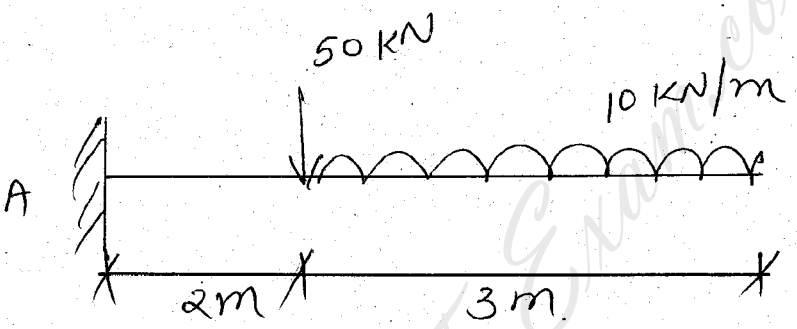


FIG-6

Fig. 6

OR

5 Calculate and Draw Shear Force and bending moment diagram for the beam shown in **fig. 7**. **13**

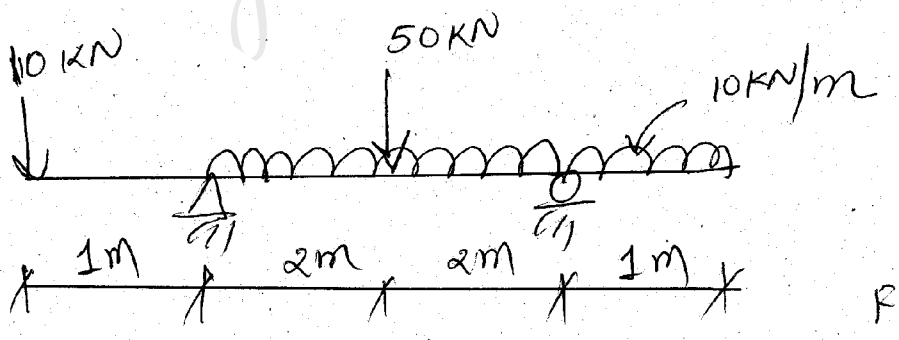


FIG-7

6 Explain and draw bending moment diagram for a Frame shown in **fig. 8 Or fig. 9**. **3**

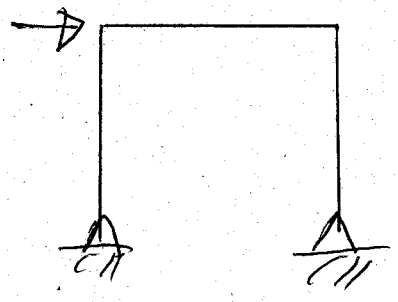


Fig- 8

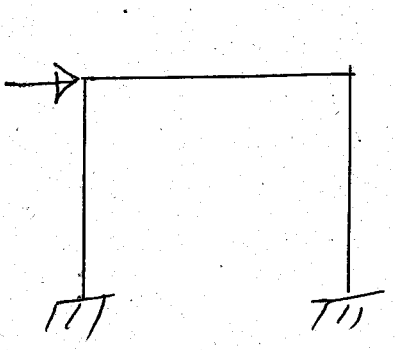


FIG-9.