* U G - 6 0 7 4 *

UG-6074

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

May/June – 2012

Structure - II

(Old Course)

Time : **3** Hours] [Total Marks : **100**

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. - I (Sem. - II)**

Name of the Subject :

☛ **Structure - II**

☛ Subject Code No. : **6 0 7 4** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Assume suitable data and specifically mention them.

(3) Figures to the right indicate full marks.

(4) Use of nonprogrammable sicentific calculator is permitted.

1 (a) Calculate & Draw Shear Force & bending moment diagram for the beam shown in fig.-1(a) OR fig.-1(b). **15**

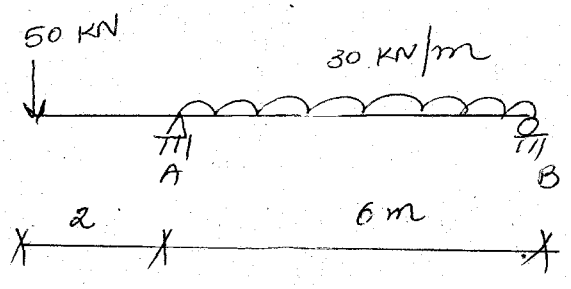


Fig- 1(a)

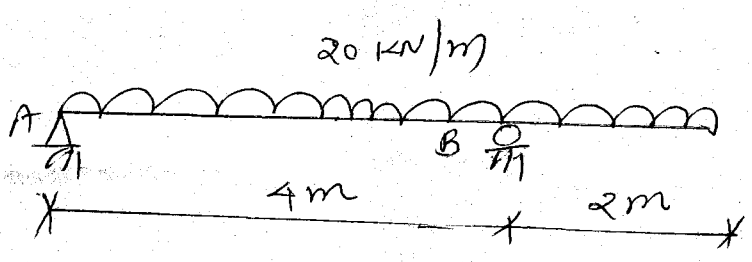


Fig - 1 (b)

(b) Calculate & Draw Shear Forece & bending moment diagram for the beam shown in Fig.-2 & Fig.-3. **15**

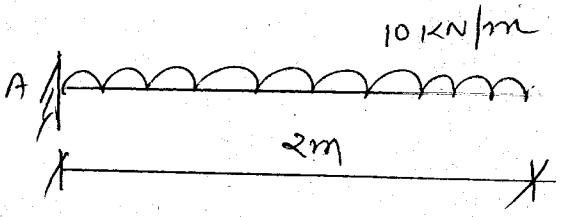


FIG- 2

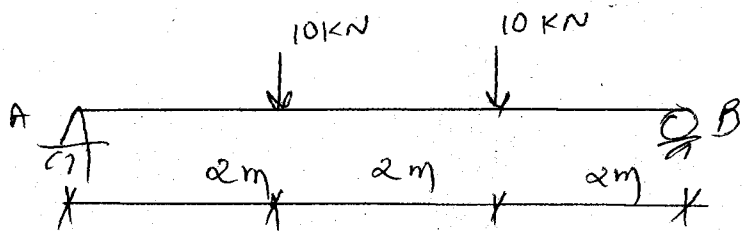


FIG-3

2 Explain following terms : **12**

(i) Ductile material

(ii) Temperature stress

(iii) Permissible stress.

3 Calculate stress in the material, shown in **Fig.-4**, $E=2\times10^5$ N/mm^2. **12**

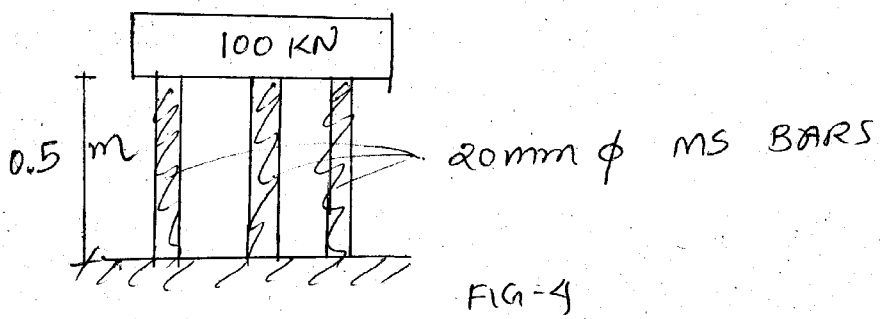


FIG-4

4 Calculate principal stress & maximum shear stress for the data shown in **Fig.-5**. Use analytical method OR Mohr circle method. **12**

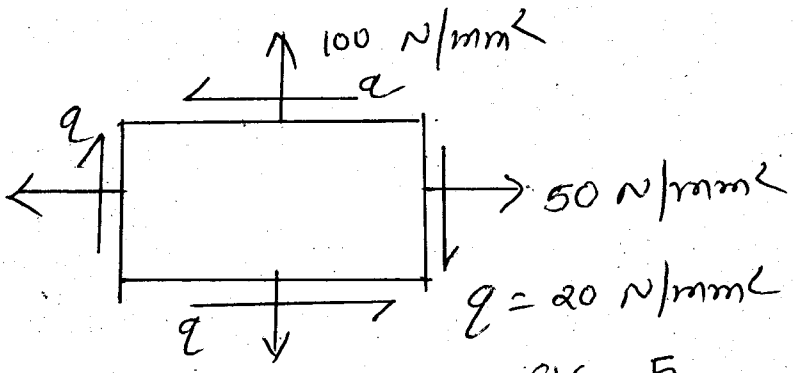


FIG - 5

5 Calculate stress & strain in various parts of the rod shown in **Fig.-6**. Modulus of Elasticity is 2×10^5 N/mm^2, $\phi ab = 60mm$, $\phi bc = 60mm$, $\phi cd = 60mm$. **10**

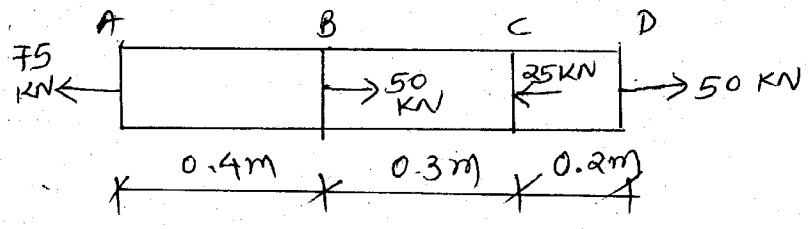


FIG-6

Attempt any two out of Q.-6, Q.-7 and Q.-8.

6 Calculate volumetric strain for the data shown in **Fig.-7**, E=2×10^5 N/mm^2, m = 4. **12**

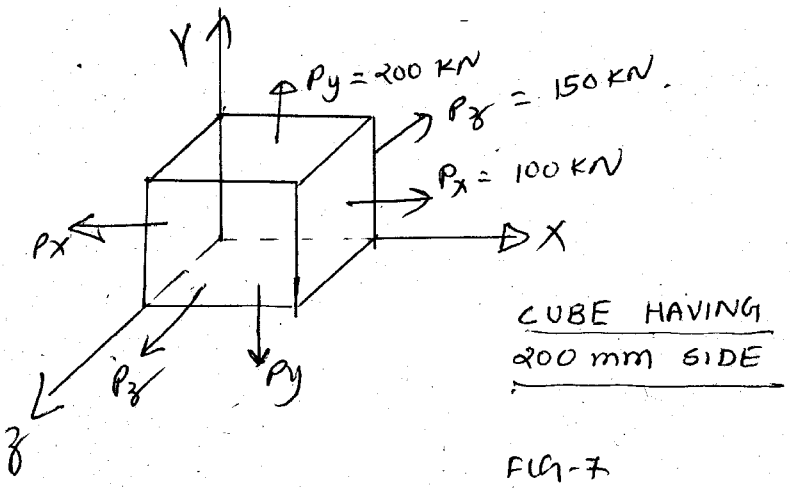


FIG-7

7 Calculate & draw BMD for the given beam shown in **Fig.**-8, using three moment theorem. **12**

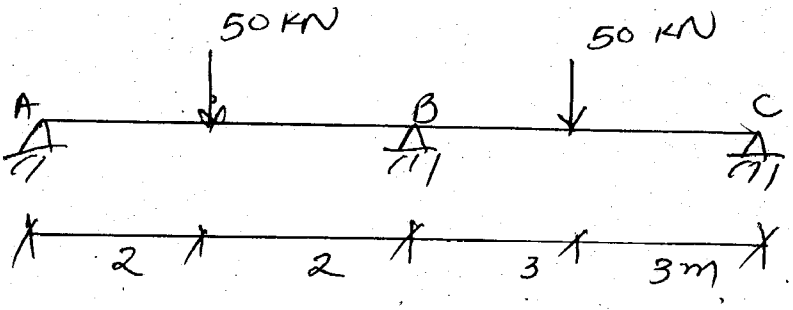
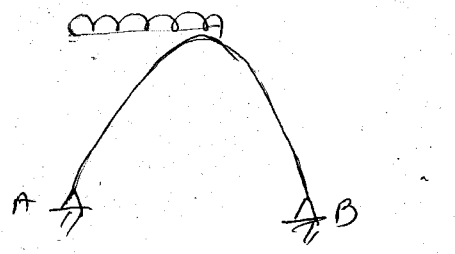


FIG-8

8 Explain & draw bending moment diagram for given arch and frame shown in Fig.-9 and Fig.-10. **12**



Parabolic 2 HINGE ARCH.

FIG 9

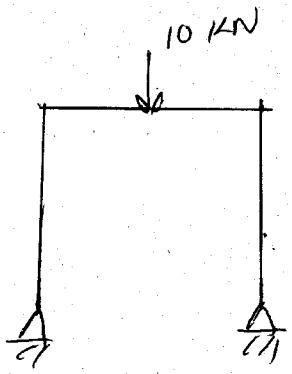


Fig.-10