SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act,1956)

Course & Branch :B.Arch - ARCH
Title of the Paper :Applied Mechanics   Max. Marks :80
Sub. Code :621204   Time : 3 Hours
Date :02/06/2011   Session :FN

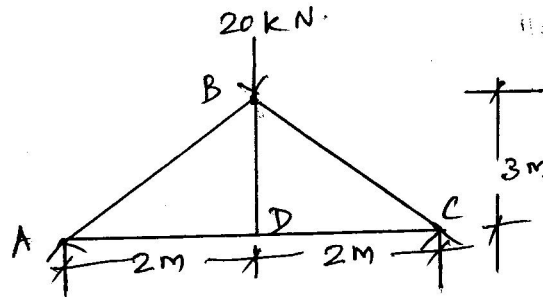PART - A   (8 x 4 = 32)
Answer ALL the Questions

1.   State triangular & parallelogram law of forces.

2.   What are the conditions for static equilibrium?

3.   What are the elastic constants?

4.   Draw and explain stress strain curve for mild steel.

5.   Define centroid and moment of inertial of an area.

6.   State parallel and perpendicular axis theorems.

7.   Define radius of gyration.

8.   Define shear force and behind moment in a beam.

9.   What are the types of beams?

10.   Define contrafexure.
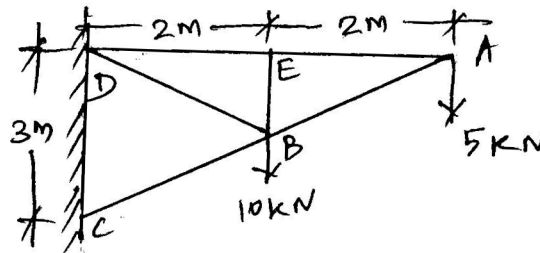
11.

Analyzes the truss by method of joints
(or)

12.

Analyse the truss any method

13. The following observations were made during a tensile test on a mild steel specimen 40mm in diameter and 200 mm long
Elongation with 40 kn load (within limit of proportionality) = δ 1=0,0304 mm
Yield load = 161 KN
Maximum load = 242 KN
Length of specimen at fracture = 249 mm
Determine (a) youngs modulus of elasticity
(b) yield point stress   (c) Ultimate stress
(d) Percentage elongation.

(or)

14. For a given material young's modulus is 110 GN/m^2 and shear modulus is 42 GN/m^2. Find the bulk modules and lateral

contraction of a round bar of 37.5 mm diameter and 2.4m long when stretched 2.5mm.
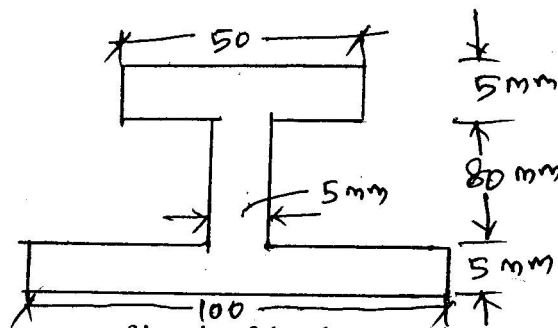
15.
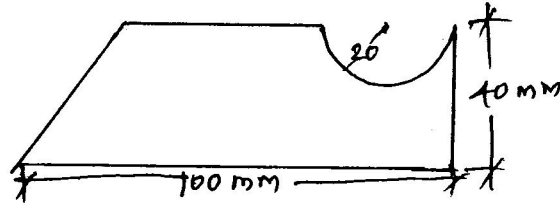
Determine the centroid for the above figure
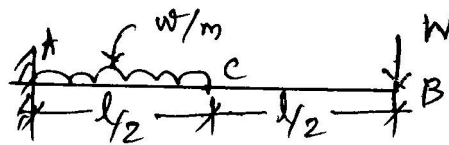
(or)

16.

Determine the moment of inertia of the above section about its centroidal axes xx and yy
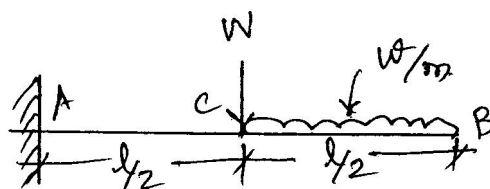
17.

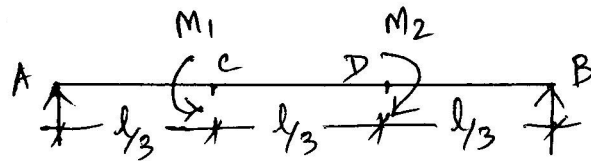Draw SFD and BMD for the above beam

(or)

18.
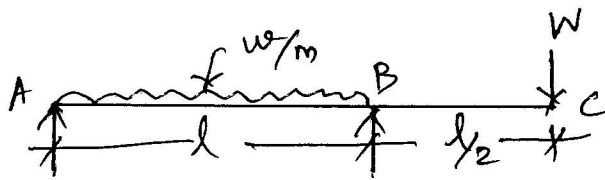

Draw SFD and BMD for the above beam

19.

Draw SFD and BMD for the above beam

(or)

20.

Draw SFD and BMD for the above beam