

FM-80

Time - 3 hrs

1. Answer all the questions.

[2 × 10 = 20]

- a) What is CG ?
- b) What is ductility ?
- c) What is Poisson's Ratio ?
- d) What is yield stress ?
- e) What is Principle stress ?
- f) What do you mean by Shear modulus of rigidity (G) ?
- g) What is prismatic bar ?
- h) What do you mean by UDL ?
- i) What is buckling load ?
- j) What is BMD ?

2. Answer any Six questions.

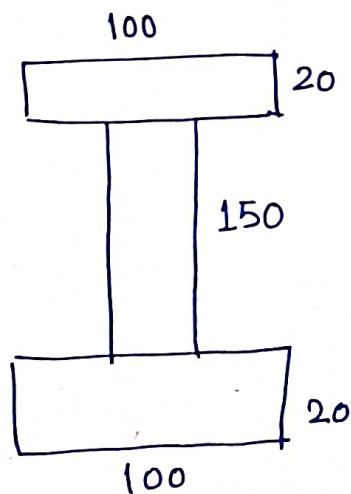
[5 × 6 = 30]

- a) Explain Hooke's Law.
- b) Explain Stress-strain diagram of mild steel.
- c) Derive deformation of prismatic bar due to self weight.
- d) Simply explain Mohr's Circle.
- e) Explain 'Middle Third Third' Rule.

f) Derive the relationship between SF & BM.

j) Explain Bending Theory and Bending Eqⁿ.

3.)



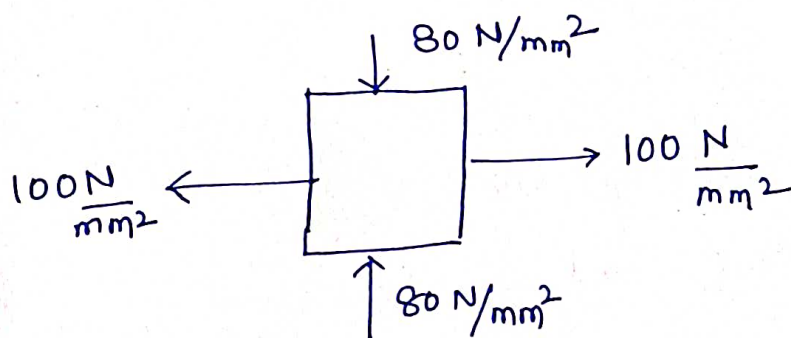
Find out I_{xx} & I_{yy} .

[10]

4.) Derive relationship between E, G, K .

[10]

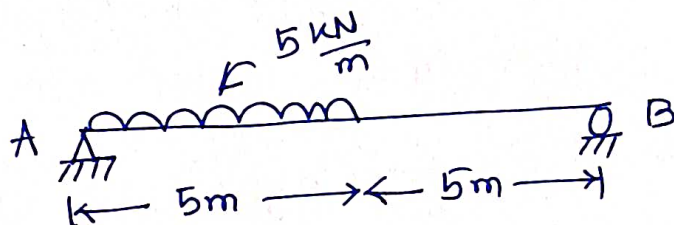
5.)



[10]

If a plane inclined at an angle 30° with the X-axis find out normal & shear stress in that plane.

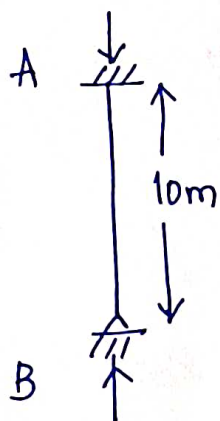
6.)



Draw SFD & BMD.

[10]

7.)



In a circular col. of length 10m with dia = 50mm & $E = 2 \times 10^5 \frac{N}{mm^2}$, Find out buckling load.

[10]