

Assignment No 1- 02, 03

Assignment No. 03

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Submitted to

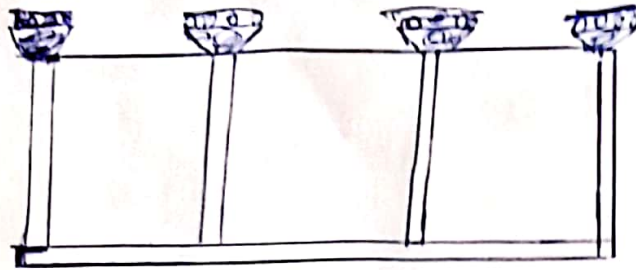
Engr Musib Bangsh

Subj: Theor of Struct 2

IN U PESH

Assignment No: 01

Q No 01:



Solution:

$$\text{No of members} = 5$$

$$\text{No of reactions} = 4$$

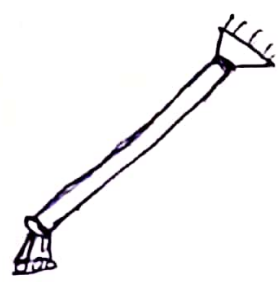
$$\text{Ass } R = 3n$$

= 4 (3) statically unstable

$$4 = 15 \Rightarrow 4 < 15$$

and indeterminate to 11°

Q No. 2



Solution:

$$\text{No of members} = n = 1$$

$$\text{No of reactions} = r = 3$$

$$R = 3n$$

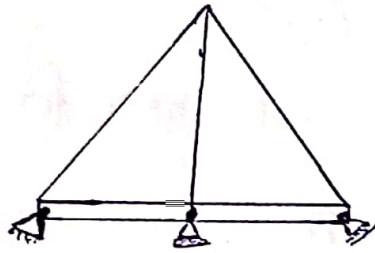
$$3 = 3(1)$$

$$3 = 3$$

Statically Determinate

Assignment No-02

Q.No.1



Solution:

$$\text{No of members} = n = 4$$

$$\text{No of reaction} = r = 3$$

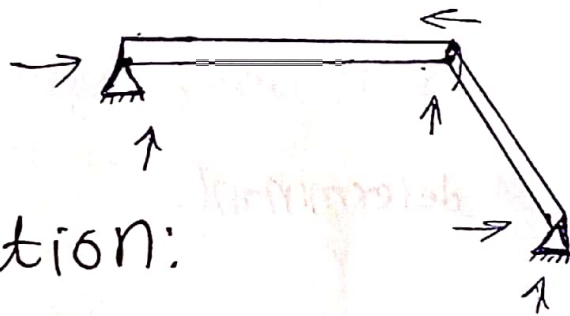
$$R = 3n$$

$$3 = 3(4)$$

$$3 < 12$$

Statically Indeterminate
to 9°

Q.No.02



Solution:

$$\text{No of members} = n = 2$$

$$\text{No of reaction} = r = 6$$

$$R = 3n$$

$$6 = 3(2) = 6 = 6$$

Statically Determinate

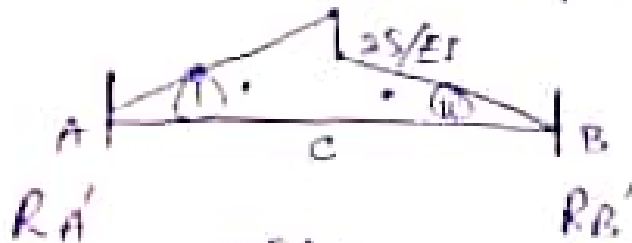
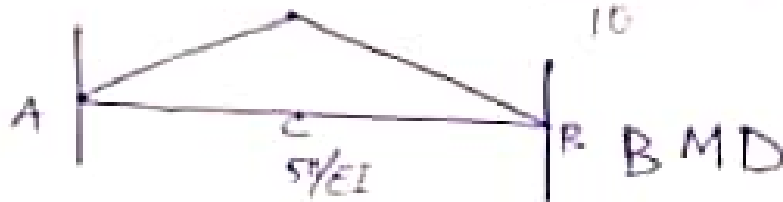
3

Q No, 3:

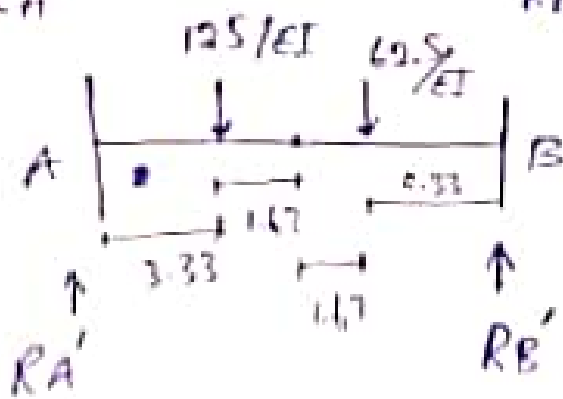
Solution:

$$R_A = \frac{5 \times 20}{10} = 10 \text{ kN}$$

$$R_B = \frac{5 \times 20}{10} = 10 \text{ kN}$$



Conj Beam M/EI Diagram



$$A_{(I)} = \frac{1}{2} \times 5 \times \frac{50}{EI} = \frac{125}{EI}$$

$$A_{(II)} = \frac{1}{2} \times 5 \times \frac{25}{EI} = \frac{62.5}{EI}$$

$$\sum F_y = 0$$

$$R_A' + R_B' = \frac{125}{EI} + \frac{62.5}{EI} = \frac{187.5}{EI}$$

$$\sum M_A = 0$$

$$10 \times R_B' = \frac{125}{EI} \times 3.33 + \frac{62.5}{EI} \times 6.67$$

(4)

$$R'_B = \frac{83.31}{EI}$$

$$\cancel{R'_B} + \cancel{R'_B} \quad R'_B + R'_A = \frac{167.5}{EI}$$

$$R'_A = 104.19$$

P_A = Shear force at A on the conjugate beam.

$$P_A = R'_A = \frac{104.19}{EI}$$

① Slope at point B

$$\theta_B = R'_B = \frac{83.31}{EI}$$

② Deflection at B

A_B = moment at B on the conjugate beam.

$$= \frac{R'_A \times 10}{EI} - \frac{62.5 \times 3.33}{EI}$$

$$= \frac{104 \times 10}{EI} - \frac{62.5 \times 3.33}{EI}$$

$$A_B = \frac{831}{EI} \quad \underline{\underline{\text{Ans}}}$$