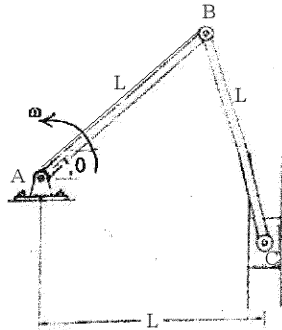
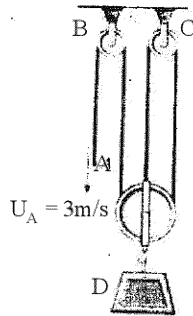


5. Bar AB rotates uniformly about the fixed pin A with a constant angular velocity ω . Determine the velocity and acceleration of block C, at the instant $\theta = 60^\circ$.



6. Determine the velocity of block D if end A of the rope is pulled down with speed of $v_A = 3$ m/s. **20**



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4

No. of Printed Pages : 05

Roll No.

W-132

**B. Tech. (Weekend)
EXAMINATION, Dec. 2018**

(First Semester)

(Re-appear Only)

(ME)

MEW103

ENGINEERING MECHANICS

Time : 3 Hours]

[Maximum Marks : 100

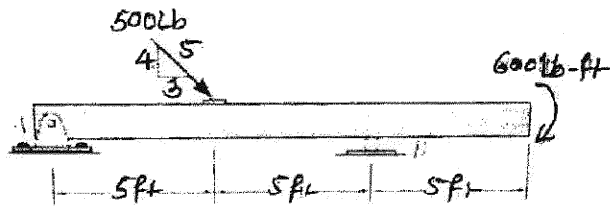
Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions.

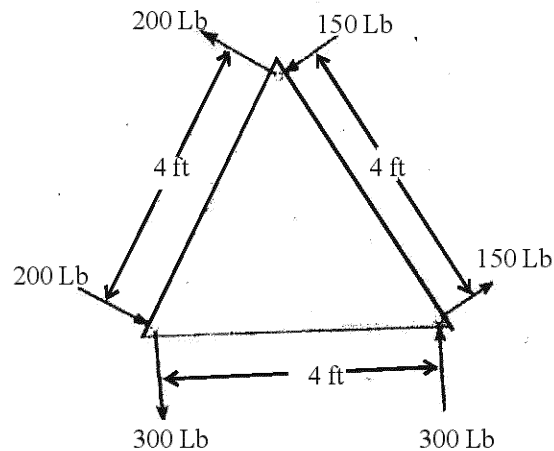
1. Determine the horizontal and vertical components of reaction at the pin A and reaction on the beam at C. **20**

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P.T.O.



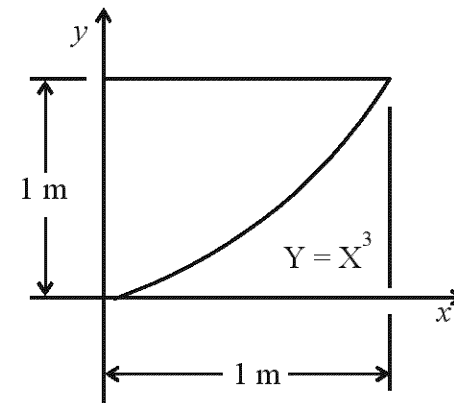
2. Explain how the couple is a free vector ?
Determine the resultant couple moment acting on the triangular plate : **20**



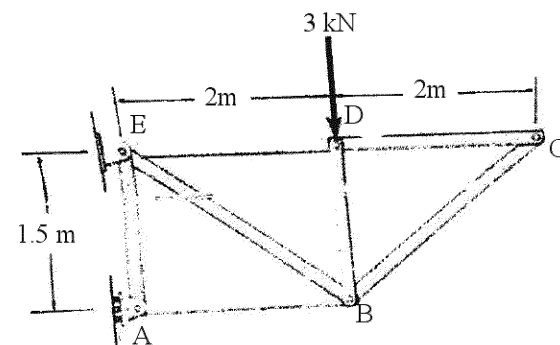
M-W-132

2

3. Locate the centroid of the shaded area. **20**



4. Determine the force in each member of the truss. Also state whether the members are in tension or compression. **20**

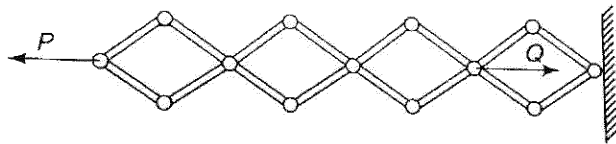


(2-38/18) M-W-132

3

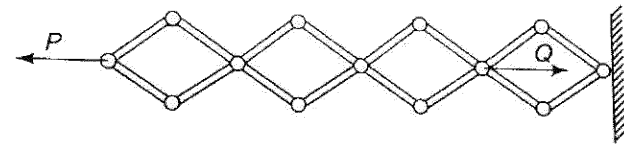
P.T.O.

7. Explain the term virtual displacement. Calculate the relation between active force P and Q for equilibrium of the system of bars shown in Fig. The bars are so arranged that they form three identical rhombuses. **20**



8. Explain any *four* of the following :
- (a) D'Alembert principle
 - (b) Principles of minimum potential energy
 - (c) Coriolis force
 - (d) Moment of mass and area inertia
 - (e) Hamilton principle. **20**

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