Q.P. Code: 18CE0101 **R18**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations November 2020

ENGINEERING MECHANICS

(Electronics & Communication Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	**a**	Define Moment and Couple.	**2M**
	b	Define Static Friction.	**2M**
	c	Define Centroid and Centre of Gravity.	**2M**
	d	Define Curvilinear and Rectilinear Motion.	**2M**
	e	Define Kinetics.	**2M**

PART-B

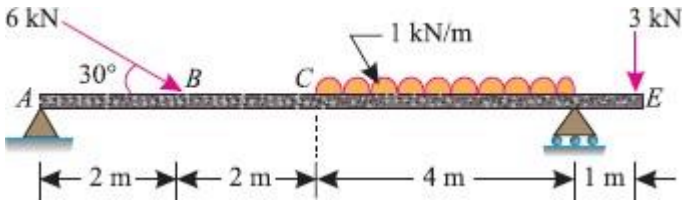
(Answer all Five Units **5 x 10 = 50** Marks)

UNIT-I

2	**a**	Classify different system of forces with suitable examples.	**5M**
	b	State and prove parallelogram law of forces.	**5M**

OR

3 A simply supported beam AB of span 6 m is loaded as shown. Determine the reactions at A and B. **10M**



UNIT-II

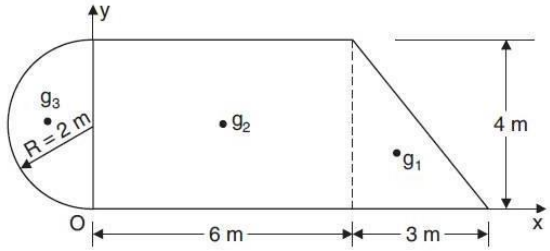
4 A body, resting on a rough horizontal plane, required a pull of 180 N inclined at 30° to the plane just to move it. It was found that a push of 220 N inclined at 30° to the plane just moved the body. Determine the weight of the body and the coefficient of friction. **10M**

OR

5	**a**	Write short note on differential screw jack with neat sketch	**5M**
	b	A screw jack raises a load of 40 KN. The screw is square threaded having three threads per 20 mm length and 40 mm in diameter. Calculate the force required at the end of a lever 400 mm long measured from the axis of the screw, if the coefficient of friction between screw and nut is 0.12	**5M**

UNIT-III

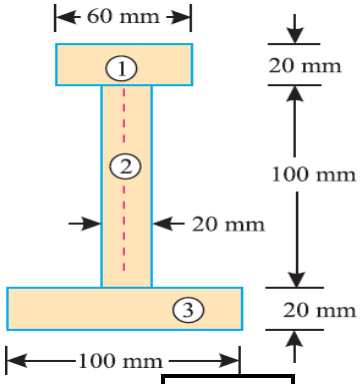
6 **10M**



Determine the centroid of the area shown with respect to the axis shown.

OR

7 An I-section is made up of three rectangles as shown in Fig.15 Find the moment of inertia of the section about the horizontal axis passing through the center of gravity of the section **10M**



UNIT-IV

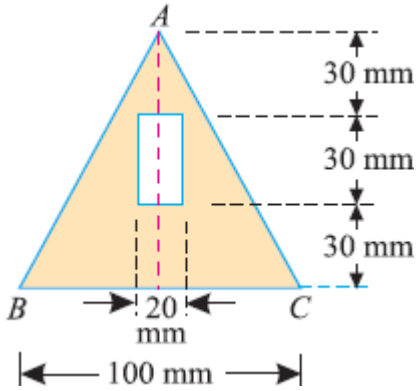
8 Derive an equation for moment of inertia of the following sections about centroidal axis: **10M**

i) A rectangular section

ii) A triangular section from its base

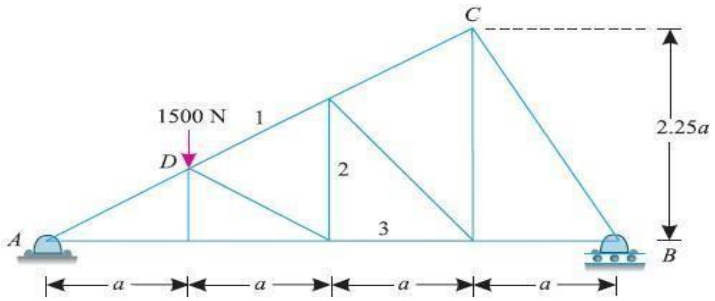
OR

9 A rectangular hole is made in a triangular section as shown in Fig.24.Determine the moment of inertia of the section about X-X axis passing through its center of gravity and the base BC. **10M**



UNIT-V

10 **10M**



A plane is loaded & supported as shown. Determine the nature and magnitude of the forces in the members' 1,2 and 3

OR

11 Explain the procedure to find forces in members of truss by using method of joints. **10M**

*****END*****