Reg. No. :					

Question Paper Code: 52106

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Second Semester

Civil Engineering

15UCE206-BASIC ENGINEERING MECHANICS

(Regulation 2015)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - $(6 \times 1 = 6 \text{ Marks})$

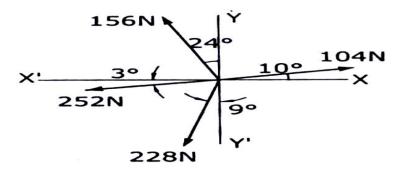
(Answer any six of the following questions)

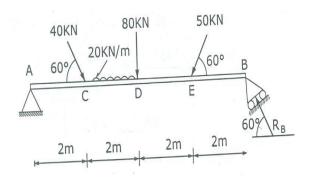
1.	If two forces of 3kg and 4kg act at right angles to each other, their resultant C force will be equal to						
	(a) 7kg	(b) 1kg	(c) 5kg	(d) 1/7kg			
2.	What is not the condition for the equilibrium in three dimensional system CO1-2 of axis?						
	(a) ∑Fx=0	(b) ∑Fy=0	(c) ∑Fz=0	(d) $\sum_{i=1}^{n}$	F≠0		
3.	The unit of force in S	I. system of units is			CO2-R		
	(a) dyne	(b) kilogram	(c) newton	(d) watt			
4.	Reactions at the supports of a structure can be determined by equating the CO2-R algebraic sum of						
	(a) Horizontal forces to zero						
	(b) vertical forces to zero						
	(c) moments about any point to zero						
	(d) all the above						
5.	The co efficient of fr	iction depends on			CO3-R		
	(a) Area of Contact		(b) Shape of surface)			
	(c) Strength of surfac	es	(d) Nature of surfac	es			

6.	The angle of inclination of the plane at which the body begins to move down the plane, is called						
	(a) angle of friction	(b) angle of re	pose (c) angle of p	rojection	(d) none of these		
7.	e .	of a semi-circle l	lies at a distance of dius.	from i	ts CO4-R		
	(a) 4r / 3π	(b) 3r / 8	(c) $3r / 4\pi$	(d)	4r / 6π		
8.	The Centre of gravit bottom, is	y of a 10 cm x	x 15 cm x 5 cm T sec	tion from	ts CO4-R		
	(a) 7.5 cm		(b) 5.0 cm				
	(c) 8.75 cm		(d) 7.85 cm				
9.	The distance in the parallel axis theorem for the use in the determination of CO5-R the product of the moment of inertia is multiplied by:						
	(a) Area	(b) Volume	(c) Linear distance	(d)	Area/Volume		
10.	What is the formula of	e formula of theorem of perpendicular axis					
	(a) $I_{ZZ} = I_{XX} - I_{YY}$ (b) $I_{ZZ} = I_{XX} + Ah^2$	(c) $I_{ZZ} - I_{XX} = I_{YY}$	(d) None of	of the above		
	$PART - B (3 \times 8 = 24 \text{ Marks})$						

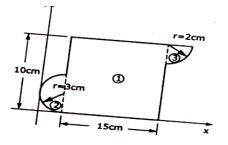
(Answer any three of the following questions)

11. The four coplanar forces are acting at a point as shown below. CO1-App (8) Determine the resultant in magnitude and direction?





- 13. A uniform ladder of weight 1000N and length 4m rests on a CO3-Ana (8) horizontal ground and leans against a smooth vertical wall. The ladder makes an angle of 60° with horizontal. When a man of weight 750N stands on the ladder, the ladder is at the point of sliding. Determine the co efficient of friction between the ladder and the floor.
- 14. Locate the centroid of the given section as shown in fig.7 CO4-Ana (8)



15. Find the moment of inertia of the section about its centroidal axis CO5-U (8) as shown in fig.

