Course Code: 2020111   Roll No: MLRS- R20

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

I B.Tech II Sem Supply End Examination, March 2022
Engineering Mechanics
(CIVIL)

Time: 3 Hours.   **Max. Marks: 70**

Note: 1. Answer any FIVE questions.
    2. Each question carries 14 marks and may have a, b as sub questions.

1	a)	Explain the Parallelogram law of forces?	7M	CO1	BL4
	b)	What is meant by "Principle of resolution"? Explain the resolution for the resultant force?	7M	CO1	BL4
2	a)	Describe the moment of forces?	7M	CO1	BL2
	b)	A rod AB 2.5 m long is supported at A and B. The rod is carrying a point load of 5 kN at a distance of 1 m from A. What are the reactions at A and B?	7M	CO1	BL3
3	a)	Define the terms : (i) Static friction (ii) Dynamic friction (iii) Limiting friction	7M	CO2	BL1
	b)	A body of weight 300 N is lying on a rough horizontal plane having a coefficient of friction as 0.3. find the magnitude of the force, which can move the body, while acting at an angle of 250 with the horizontal.	7M	CO2	BL3
4	a)	Explain the laws of static friction?	7M	CO2	BL4
	b)	A body of weight 50 N is hauled along a rough horizontal plane by a pull of 18 N acting at an angle of 140 with the horizontal. Find the coefficient of friction.	7M	CO3	BL3
5	a)	Find the centroid of an unequal angle section 100 mm x 80mmx20mm.	7M	CO3	BL3
	b)	Describe the various methods of finding out the centre of gravity of a body.	7M	CO3	BL2
6	a)	How do you find out the moment of inertia of a plane area?	7M	CO4	BL1
	b)	Find the moment of inertia of a hollow rectangular section about it centre of gravity if the external dimensions are breadth 60 mm, depth 80 mm and internal dimensions are breadth 30 mm and depth 40 mm respectively.	7M	CO4	BL3
7	a)	Explain the term mass moment of inertia of composite bodies?	7M	CO4	BL4
	b)	Explain the term work-energy principle?	7M	CO5	BL4
8	a)	A body of mass 7.5 kg is moving with a velocity of 1.2 m/s. If a force of 15 N is applied on the body, determine its velocity after 2s.	7M	CO5	BL3
	b)	Explain about the D'Alembert's Principle?	7M	CO5	BL4

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