Student Exam No. _____

GANPAT UNIVERSITY

B. Tech. Semester: III (Marine) Engineering

Regular Examination November – December 2014

2MR306 Engineering Mechanics.

Time: 3 Hours **Total Marks: 70**

Instruction: 1 Attempt all Questions.
2 Assume suitable data if necessary.
3 Figure to the right indicates full Marks.
4 Start new Question on New Page.

Section - I

Que. – 1	**(a)**	Derive the equation of kinetic energy due to rotational.	**6**
	(b)	A body is resting on a rough horizontal plane, required a pull of 180 N The plane just to move it. It was found that a push of 220 N inclined at Just moved the body. Determine the weight of body and the coefficient. of friction.	**6**
		OR	
Que. – 1	**(a)**	Derive equation of Equilibrium of a body on a rough inclined plane subjected to a force acting horizontally.	**6**
	(b)	A body of weight 300 N is lying on a rough horizontal plane having a As 0.3. find the magnitude of force, which can move the body, while 25° with the horizontal.	**6**
Que. – 2	**(a)**	Explain simple pendulum in simple harmonic motion.	**5**
	(b)	Explain cone clutch in friction	**6**
		OR	
Que. – 2	**(a)**	Explain simple harmonic motion with some example	**5**
	(b)	Describe the efforts required in the screw jack	**6**
Que. – 3	**(a)**	Find the efficiency of screw jack.	**6**
	(b)	Find the conical pendulum in simple harmonic motion.	**6**

Section – II

Que. – 4	**(a)**	Explain slip of belt and creep in belt.	**6**
	(b)	State the different types of brake? Explain any one.	**6**
		OR	
Que. – 4	**(a)**	Explain rope brake dynamometer.	**6**
	(b)	State different types of governor? Explain any one.	**6**
Que. – 5	**(a)**	A load of 1.5 KN resting on an inclined rough plane, can be moved up a force of 2 KN applied horizontally or by a force 1.25 KN applied Find the Inclination of the plane and the coefficient of friction.	**11**
		OR	
Que. – 5	**(a)**	Difference between the flywheel and governor.	**6**
	(b)	Give the difference between the flat belt drive a V belt drive.	**5**
Que. – 6	**(a)**	What is the friction? Give the different types of friction.	**6**
	(b)	A uniform homogeneous cylinder of 125 mm radius has a mass of 0.15 Without slipping along a level horizontal surface with a translational Determine its total kinetic energy.	**6**

END OF PAPER

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