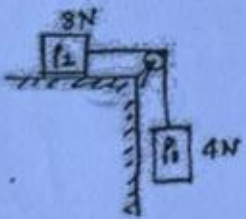


MCT
 MANJARA CHARITABLE TRUST
 RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI
 Department of Applied Sciences & Humanities

INTERNAL ASSESMENT IA - II

Date: - 06/12/24

Max. Marks: 20	Duration: 1 Hour
Class: FE	
Name of the Course: Engg. Mechanics	
Branch: All	
Instructions: 1. Question 1(i,ii,iii) is compulsory for 10 Marks 2. From Question 2 to 4 (Solve any Two) 3. Figures to the right of the question indicate full marks. 4. Assume the suitable data wherever necessary. 5. Illustrate your answers using neat diagrams wherever necessary.	

Questions	Maximum Marks	Bloom's Taxonomy Level	Course Outcomes
Q1. i State the laws of robotics	3	2	C06
Q1. ii Blocks P ₁ and P ₂ are connected by inextensible string. Find velocity of block P ₁ , if it falls by 0.6m starting from rest. The coefficient of friction is 0.2, pulley is friction less. 	3	2	C05
Q1. iii The position vector of a particle which moves in the X-Y plane is given by $\vec{r} = (3t^3 - 4t^2)\mathbf{i} + (0.5t^4)\mathbf{j}$ m. Calculate velocity and acceleration at t=1 sec.	4	2	C04
From Question 2 to 4(Solve any Two)			
Q2. Explain briefly about Degrees of freedom with neat sketch.	5	2	C06

Q3. Just before any collide, two disk on a horizontal surface have velocities shown in fig. knowing that 90N disk 'A' rebound to the left with a velocity of 1.8 m/s. Determine the rebound velocity of the 135N disk 'B'. Assume the impact is perfectly elastic.

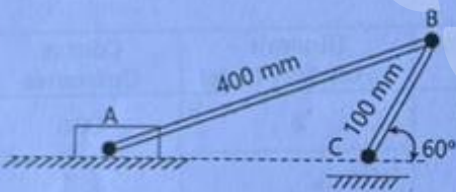


5

3

C05

Q4. The crank BC of a slider crank mechanism is rotating at constant speed of 30 rpm clockwise. Determine the velocity of the piston A at the given instant



5

3

C04