VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. III-Semester Bridge Course Supplementary Examinations, August-2022 **Mechanics for Engineers**

Time: 3 hours

Max. Marks: 50

Note: Answer all questions from Part-A and any FIVE from Part-B

What is principle of transmissibility? Decipher the term engineering mechanics List equations of equilibrium for a coplanar concurrent system of forces How many reactions are possible for a ball and socket joint? What is cone of friction? List examples of advantages and disadvantages of friction What is translation motion?	2 2 2 2 2	1 1 2 2 1	1 1 2 2 2	1 1 1 1
List equations of equilibrium for a coplanar concurrent system of forces How many reactions are possible for a ball and socket joint? What is cone of friction? List examples of advantages and disadvantages of friction		1 2 2 1	1 2 2	
How many reactions are possible for a ball and socket joint? What is cone of friction? List examples of advantages and disadvantages of friction	2 2 2	2 2 1	2	
How many reactions are possible for a ball and socket joint? What is cone of friction? List examples of advantages and disadvantages of friction	2 2 2	2	2	1
What is cone of friction? List examples of advantages and disadvantages of friction	2	1	d sitt	
I or king A should not be be the real of the block of	2		3	1
What is translation motion?		1	3	1
ARE COMMONIA COMPANIANT AND	2	2	4	1
What is curvilinear motion? Issued beautiful engined, dealing a substitution of the su	2	1	4	1
State 'D' Alembert's principle	2	2	5	1
Distinguish the terms kinematics and kinetics	2	2	5	1
Part-B $(5 \times 6 = 30 \text{ Marks})$				
In the figure a boom AC is supported by ball and socket joint at C and by cables AE and BD. If the force multiplier of a force F acting from A to E is $F_m = 15 \text{ N/m}$ and that of a force acting from B to D is $P_m = 25 \text{N/m}$ solve for the component of each force along AC.	6	3	1 bni4	1
Determine the amount and direction of the smallest force P required to start the wheel shown in fig over the block. What is the reaction at the block? Weight of the wheel is 200 N. The wheel and the block are on a horizontal ground.	6	2	2	1
D Inn A au	istinguish the terms kinematics and kinetics Part-B ($5 \times 6 = 30 \text{ Marks}$) In the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the force multiplier of a force F acting from A to E is $F_m = 15 \text{ N/m}$ and that of a force acting from B to D is $P_m = 25 \text{N/m}$ solve for the component of each force along AC. The force along AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom A to E is $F_m = 15 \text{ N/m}$ is the force along AC. The force along AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom A to E is $F_m = 15 \text{ N/m}$ is the force along AC. The force along AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom A to E is $F_m = 15 \text{ N/m}$ is $F_m = 15 \text{ N/m}$. The figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom A to E is $F_m = 15 \text{ N/m}$ is $F_m = 15 \text{ N/m}$. The figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom A to E is $F_m = 15 \text{ N/m}$ is $F_m = 15 \text{ N/m}$. The figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom A to E is $F_m = 15 \text{ N/m}$ is $F_m = 15 \text{ N/m}$. The figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_m = 15 \text{ N/m}$ in the figure a boom A to E is $F_$	Part-B (5 × 6 = 30 Marks) In the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the force multiplier of a force F acting from A to E is F _m = 15 N/m and that of a force acting from B to D is P _m = 25N/m solve for the component of each force along AC. The solution of the smallest force P required to start the heel shown in fig over the block. What is the reaction at the block? Weight of the wheel is 200 N. The wheel and the block are on a horizontal ground.	Part-B (5 × 6 = 30 Marks) The figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the force multiplier of a force F acting from A to E is F _m = 15 N/m and that of a force acting from B to D is P _m = 25N/ m solve for the component of ach force along AC. The figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the force multiplier of a force F acting from A to E is F _m = 15 N/m and that of a force acting from B to D is P _m = 25N/ m solve for the component of ach force along AC. The figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the figure a boom AC is supported b	Part-B (5 × 6 = 30 Marks) If the figure a boom AC is supported by ball and socket joint at C and by cables E and BD. If the force multiplier of a force F acting from A to E is F _m = 15 N/m and that of a force acting from B to D is P _m = 25N/m solve for the component of each force along AC. The figure a boom AC is supported by ball and socket joint at C and by cables are not be acting from B to D is P _m = 25N/m solve for the component of each force along AC. The figure a boom AC is supported by ball and socket joint at C and by cables are not be acting from A to E is F _m = 15 N/m and that of a force acting from B to D is P _m = 25N/m solve for the component of each force along AC. The figure a boom AC is supported by ball and socket joint at C and by cables are not be acting from A to E is F _m = 15 N/m and that of a force acting from A to E is F _m = 15 N/m and that of a force acting from B to D is P _m = 25N/m solve for the component of each force along AC. The figure a boom AC is supported by ball and socket joint at C and by cables are not be acting from A to E is F _m = 15 N/m and that of a force acting from A to E is F _m = 15 N/m and that of a force acting from B to D is P _m = 25N/m solve for the component of each force along AC. The figure a boom AC is supported by ball and socket joint at C and by cables are not be acting from A to E is F _m = 15 N/m and the component of each force acting from A to E is F _m = 15 N/m and the component of each force acting from B to D is P _m = 25N/m solve for the component of each force acting from B to D is P _m = 25N/m solve for the component of each force acting from B to D is P _m = 25N/m solve for the component of each force acting from B to D is P _m = 25N/m solve for the component of each force acting from B to D is P _m = 25N/m solve for the component of each force acting from B to D is P _m = 25N/m solve for the component of each force acting from B to D is P _m = 25N/m solve for the component of each force acting from B to D is P _m = 25N/m solve for the co

		MANAGE	
13.	A horizontal bar of 10m long and of negligible weight rests on rough incline planes as shown in figure. If angle of friction ϕ is 18° identify how close to B may the 200N force be applied before motion impends.	6 3 3	1
	100 N 200 N	ernod & tom	art I
50	Maxwellans from Part-A and any FRVE from Part-3	Non	
09	30° not 60" Millio mass		.on .s
	ple of transmissibility? The		1,
E de la companya de l	erm engineering macha	A = 27 (1984)	2
14.	A projectile is fired from top of a cliff 125m high with a velocity of 380 m/s	6 3 4	1
Ţ	directed at 25° to the horizontal. Solve for the range on horizontal plane through the base of the cliff.	How many rea	5.
1	1 1 2 1 3	What is cone of	
15.	Two blocks A and B are released from rest on 30° inclined plane when they are 18m apart. The coefficient of friction are 0.2 and 0.4 for blocks A and B	6 9 3 7 5 1 5 1	1.0
	respectively. Solve for the elapsed time until the blocks touch. Also calculate the	What is transla	7.
1	acceleration after blocks coming in contact. Compute desired quantities in terms	What is curvili	,8,
		State 'D' Alem	1
	terms kinematics and kinetids	Distinguish the	10.
	and all yells and an		
16. a)	Find the resultant of the following system of forces	3 2 1	1
	448 N Y 600 N	e gair on mercite	
	a over the block. When is the collection of the	ni nosair isoli Wicel is 200	
	260 N 12 2 3		
	361 N		

Code No.: 13741 S

	b)	Two cylinders 20N and 40 N are piled in a rectangular ditch as shown in figure. Neglecting friction, determine the reactions at various contact points.	3	2	2	1
		6cm				
		Acm				
		18cm				
	17.	Answer any two of the following:				
	a)	Determine the minimum weight of block B that will keep it at rest as horizontal force P starts motion of block A which weighs 300N. The angle of friction is 150 between A and B while the coefficient of friction is 0.30 between B and the ground.	3	3	3	1
		$P \longrightarrow A$				
	b)	Solve for the depth of well if a stone is dropped into a well with no initial velocity and 8 seconds later splash is heard. If the velocity of sound is 220 m/s.	3	1	4	1
	c)	The frame of certain machine accelerates rightward at 7/8 g m/s ² . As shown in figure it carried a uniform bent bar ABC weighing 300N/m pinned to it at C and braced by the uniform strut DE which weighs 400N. Solve for the components of the force at pin D	3	3	5	1
Medical and special and second an		1.0m				

M: Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

<u>i)</u>	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	33%
iii)	Blooms Taxonomy Level – 3 & 4	47%
