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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR (AUTONOMOUS)         B.Tech II Year I Semester Supplementary Examinations December-2021         KINEMATICS OF MACHINERY         KINEMATICS OF MACHINERY         KINEMATICS OF MACHINERY         (Mechanical Engineering)         Time: 3 hours         Max. Marks: 60         (Mechanical Engineering)         Time: 3 hours         Max. Marks: 60         (Mechanical Engineering)         Time: 3 hours         Max. Marks: 60         COR         2         A Explain the inversions of double slider crank chain with neat sketch and list out the practical applications of inversions.       L2       6M         DR         2       a Explain the working of Docillating cylinder engine with neat sketch.       L2       6M         DIFTING         3       With neat sketch, explain the Davis steering mechanism.       L4       6M         DIFTING         3       With neat sketch, explain the Davis steering mechanism.       L4       6M         b       Max are the disadvantages of	F	Reg. No:	2.97 3 05	b seco	121.11	ank	10110	2.453	Line of the second s	160.18		]				
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B.Tech II Year I Semester Supplementary Examinations December-2021 KINEMATICS OF MACHINERY (Mechanical Engineering) Time: 3 hours Max. Marks: 60 (Answer all Five Units 5 x 12 = 60 Marks) UNIT- 1 Explain the inversions of double slider crank chain with neat sketch and list out the L3 12M practical applications of inversions. OR 2 a Explain the working of beam engine with neat sketch and list out the L2 6M b Explicate the working of Deam engine with neat sketch L2 6M b Explicate the working of Oscillating cylinder engine with neat sketch. L2 6M VINT-II 3 With neat sketch, explain the Davis steering gear of an automobile. L2 12M OR 4 a Differentiate between the Davis and Ackerman's steering mechanism. L4 6M b What are the disadvantages of Davis steering gear mechanism. L1 6M UNTT-III 5 In a four bar chain ABCD, AD is fixed and is 150 mm long. The crank AB is 40 L3 12M mm long and rotates at 120 r.p.m. clockwise, while the link CD = 80 mm oscillates about D. BC and AD are of equal length. Find the angular velocity of link CD when angle BAD = 60° OR 6 a Discuss the three types of instantaneous centres for a mechanism L0 6M b Write the relation between the number of instantaneous centres and the number of links in a mechanism. UNIT-IV 7 A cam is to give the following motion to a knife-edged follower : L2 12M OR 12 12M NUTION 7 A cam is to give the following motion to a knife-edged follower : L2 12M OR 2 12M OR 2 12M OR 3 2 12M OR 4 2 Divel for the next 30° of cam rotation; 2. Dwell for the next 30° of cam rotation; 3. Return stroke during next 60° of cam shaft, and (ii) the axis of the follower is offset by 20 mm f on the axis of the cam shaft, and (ii) the axis of the follower is offset by 20 mm f on the axis of the cam shaft.	(AUTONOMOUS)															
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		is offset by 20 r	mm f om	the axi	is of tl	ne can	ı shaft									

## Q.P. Code: 19ME0304

8

OR

**R19** 

L2 12M

roller follower the motion defined below : 1. Follower to move outwards through 50 mm during 120° of cam

A cam rotating clockwise at a uniform speed of 1000 r.p.m. is required to give a

rotation,

2. Follower to dwell for next 60° of cam rotation,

3. Follower to return to its starting position during next  $90^{\circ}$  of cam rotation,

4. Follower to dwell for the rest of the cam rotation.

The minimum radius of the cam is 50 mm and the diameter of roller is 10 mm. The line of stroke of the follower is off-set by 20 mm from the axis of the cam shaft. If the displacement of the follower takes place with uniform and equal acceleration

and retardation on both the outward and return strokes, draw profile of the cam and

find the maximum velocity and acceleration

during out stroke and return stroke.

## UNIT-V

9	<b>a</b> What do you understand by the term 'interference' as applied to gears?	L1	<b>6M</b>					
	<b>b</b> Write advantages and disadvantages of gears	L1	<b>6M</b>					
	OR							
10	Explain briefly the differences between simple, compound, and epicyclic gear	L4	12M					
	trains. What are the special advantages of epicyclic gear trains?							

\*\*\* END \*\*\*