Q.P. Code: 18ME0304 **R18**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations December-2021

KINEMATICS OF MACHINERY

(Mechanical Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	a	Name the classification of the kinematics pairs with all the aspect.	L1	2M
	b	What is hook's joint?	L1	2M
	c	What is coriolis component of Acceleration?	L1	2M
	d	What is a pressure angle of cam?	L1	2M
	e	What is the application of bevel gear?	L1	2M

PART-B

(Answer all Five Units **5 x 10 = 50** Marks)

UNIT-I

2		What are the practical applications of inversions of the 4 – bar linkage? Explain all with neat sketch.	L1	10M

OR

3		What are the practical applications of inversions of the double slider crank chain? Explain all with neat sketch.	L1	10M

UNIT-II

4		With neat sketch, explain the Davis steering gear of an automobile.	L2	10M

OR

5		With neat sketch, explain the working of any two of exact straight line mechanisms.	L2	10M

UNIT-III

6		In a four bar chain ABCD, AD is fixed and is 150 mm long. The crank AB is 40 mm long and rotates at 120 rpm. 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°.	L3	10M

OR

7	a	What do you understand by the instantaneous centre of rotation in kinematic of machines? Answer briefly.	L2	5M
	b	Explain the following terms: (i) Instantaneous center (ii) Body center and space centrode (iii) Axode.	L1	5M

UNIT-IV

8		Use the following data in drawing the profile of a cam in which a knife-edged follower is raised with uniform acceleration and deceleration and is lowered with simple harmonic motion: Least radius of cam = 60 mm, Lift of follower = 42 mm, Angle of ascent = 60° Angle of dwell between ascent and descent = 40°, Angle of descent = 72°. If the cam rotates at 180 rpm, determine the maximum velocity and acceleration during ascent and descent.	L3	10M

OR

9		What are the different types of motion with which a follower can move?	L2	10M

UNIT-V

10		Explain the epicycloids and hypocycloidal forms of teeth with neat sketch	L2	10M

OR

11	a	What do you understand by 'gear train'? Discuss the various types of gear trains.	L2	5M
	b	How the velocity ratio of epicyclic gear train is obtained by tabular method?	L2	5M

END