R19

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year I Semester Supplementary Examinations August-2022
KINEMATICS OF MACHINERY
(Mechanical Engineering)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	Describe the classification of the kinematics pairs with neat sketch and all the aspect.	**L4** **12M**

OR

2	Explain the practical applications of inversions of the 4 – bar linkage? Explain all with neat sketch.	**L1** **12M**

UNIT-II

3	a	What is the condition for correct steering? Write fundamental equation of it.	**L1** **6M**
	b	Give a neat sketch of the straight line motion Hart mechanism.	**L5** **6M**

OR

4	a	Draw the Sketch and Describe the watt mechanism.	**L1** **6M**
	b	Draw the Sketch and Describe the Tchebichef mechanism.	**L1** **6M**

UNIT-III

5	a	Explain how the velocities of a slider and the connecting rod are obtained in a slider crank mechanism.	**L2** **6M**
	b	Define rubbing velocity at a pin joint. What will be the rubbing velocity at pin joint when the two links move in the same and opposite directions?	**L1** **6M**

OR

6	a	What do you understand by the instantaneous centre of rotation in kinematic of machines? Answer briefly.	**L1** **6M**
	b	Explain the following terms: (i) Instantaneous center (ii) Body center and space centrode (iii) Axode	**L2** **6M**

UNIT-IV

7	Define the following terms i. Cam ii. Follower iii. Offset follower iv. Radial follower	**L2** **12M**

OR

8	a	Explain with sketches the different types of followers.	**L2** **6M**
	b	Write short notes on cams	**L2** **6M**

UNIT-V

9	The number of teeth on each of the two equal spur gears in mesh are 40. The teeth have 20° involute profile and the module is 6 mm. If the arc of contact is 1.75 times the circular pitch, find the addendum.	**L3** **12M**

OR

10	a	What do you understand by 'gear train'? Discuss the various types of gear trains.	**L1** **6M**
	b	How the velocity ratio of epicyclic gear train is obtained by tabular method?	**L1** **6M**

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