4TH SEM./AUTO/DIP IN MECH./MECH./MECH(IND.INTG) /MECH(MAINT)/MECH(PROD)/MECH(SANDWICH)/ 2022(S)
Th1-Theory of Machines

Full Marks: 80 Time- 03 Hrs

Answer any five Questions including Q No.01 & 02
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
   a. Define kinematic link. Mention its types.
   b. What is the difference between Brake and Dynamometer?
   c. What is Amplitude and Time period related to vibration?
   d. What is crowning of pulleys?
   e. Write down the length of Open belt drive formula.
   f. What is the function of Cam and Followers?
   g. Define Co-efficient of friction.
   h. What are the uses of Chain drive and Gear drive?
   i. What is Vibration and Types of vibration?
   j. What is the function of Clutch?

2. Answer **Any Six** Questions 6 x 5
   a. What is the function of bearing? Describe the roller bearing with neat sketch.
   b. Derive an expression for the height of Watt Governor with neat sketch.
   c. Differentiate between Static and Dynamic balancing.
   d. Define Velocity ratio of gear train. Derive velocity ratio of a Simple Gear train with neat sketch.
   e. What is four bar chain? Explain any two inversion of four bar chain.
   f. What are the causes and remedies of Vibration?
   g Comparison between Flywheel and Governor.

3 Derive the expressions for frictional torque in Pivot bearing considering uniform pressure. 10

4 A belt is running over a pulley of diameter 120 cm at 200rpm. The angle of contact is $165^0$and co-efficient of friction between the belt and pulley is 0.3. If the maximum tension in the belt is 3000N. Find power transmitted by the belt. 10

5	Describe the working of Absorption type of dynamometer.	10
6	Explain the terms: (i.)Sensitivity of Governor (ii.)Stability of Governor (iii.)Isochronisms of Governor (iv.) Ratio of Belt tension (v.)Co-efficient of fluctuation of speed.	10
7	With neat sketch describe the Longitudinal and Torsional vibration.	10