

**5TH SEM./MECH./AUTO./ DIP IN MECH./MECH(MAIN.)/
MECH(PROD.)/MECH(SAND.)/MECH(IND. INT.)/ 2024(W)**

TH4 Mechatronics

Full Marks: 80

Time- 3 Hrs

**Answer any five Questions including Q No.1& 2
Figures in the right-hand margin indicates marks**

1. Answer **All** questions 2 x 10
 - a. What is thermocouple?
 - b. Define Mechatronics.
 - c. State the uses of worm gear.
 - d. What is meant by solenoid?
 - e. State various applications of Mechatronics.
 - f. Define sensor. State its advantages.
 - g. What is meant by the mnemonics?
 - h. Write down the advantages of PLC.
 - i. Write down the advantages and disadvantages of robots?
 - j. List the various types of the mechanical actuators.
2. Answer **Any Six** Questions 5 x 6
 - a. Define sensor and explain the working of motion sensor.
 - b. Explain Electromechanical transducer with its application.
 - c. Explain the functioning of CAD/CAM system.
 - d. Explain different types of Industrial Robot.
 - e. Explain briefly: (i) Mnemonics (ii) Jump Controller 2.5x 2
 - f. Explain briefly about light sensor, temperature sensor with a neat sketch.
 - g. Give a brief description about Bolt and Belt drive mechanism.
3. Answer **Any Three** Questions
3. What are the different types of electromechanical transducer? Discuss in details. 4+6
4. What is meant by drives in CNC? Explain the different types of drives present in CNC machine 2+8
5. Classify the different types of Kinematic pair. Explain working principle of slider crank mechanism with neat sketch. 4+6
6. Explain briefly: 5+5
 - (i) Light sensor
 - (ii) Stepper motor
7. Explain various components of a mechatronics system. 10