

**5TH SEM./MECH /AUTO/DIP.MECH /MECH[MAIN]/MECH[PROD]
/MECH[SAND]/MECH[IND.INT]MECH[AUTO] 2020(W) NEW
Th-4 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. Define Mechatronics.
 - b. "The System Mechatronics" is employed with how many systems?
 - c. What is thermocouple?
 - d. Define kinematic link.
 - e. Define sensor. State its advantages.
 - f. What is meant by solenoid?
 - g. State the function of an actuator.
 - h. Define spur gear.
 - i. Define relay.
 - j. What is mnemonics?
2. Answer **Any Six** Questions: 6 x 5
 - a. Explain Mechatronics system and Measurement system with appropriate block diagram with advantages and disadvantages?
 - b. Explain Electromechanical transducer with its application.
 - c. Briefly describe about transducer actuating mechanism and various types of transducer.
 - d. Explain briefly about light sensor, temperature sensor with a neat sketch.
 - e. Give a brief description about Bolt and Belt drive mechanism.
 - f. Explain different types of Industrial Robot.
 - g. Explain functioning of CAD/CAM system.
3. Explain briefly the Architecture basic internal structure of PLC and also the selection and use of PLC. 10
4. Classify the different types of Kinematic pair. Explain working principle of slider crank mechanism with neat sketch. 10
5. Calculate the velocity ratio and the output speed of the driver pulley on a lawn mower belt and pulley, where the input speed is 300rpm and diameter of driver pulley is 150mm and diameter of driven pulley is 15mm? 10
6. Explain Electrical Actuator and the working principle of Electrical solenoid Actuator with its application. 10
7. Write short notes on: 10
 - a) Switches
 - b) Guideways
 - c) Spindle drive
 - d) Master and Jump control
 - e) DC motor