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17ME753

## Seventh Semester B.E. Degree Examination, Feb./Mar.2022 Mechatronics

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, choosing ONE full question from each module.**

### Module-1

- 1 a. Define Mechatronics. Explain the levels of Mechatronics. (10 Marks)  
b. Write advantages, disadvantages and applications of mechatronics. (10 Marks)

OR

- 2 a. Write the classification of sensors. Explain the working of photo emissive cell with neat sketch. (10 Marks)  
b. Explain (i) Proximity sensor (ii) Hall effect sensor. (10 Marks)

### Module-2

- 3 a. Explain with a flow diagram working of automatic door opening. (10 Marks)  
b. Explain 3 types of Instructions in micro processor. (10 Marks)

OR

- 4 a. Explain with a neat sketch of Architecture of 8085 A micro processor. (12 Marks)  
b. Explain (i) PC (ii) Flag (iii) State (iv) BUS. (08 Marks)

### Module-3

- 5 a. Define PLC. Explain with a neat sketch architecture of PLC. (10 Marks)  
b. Explain Latching with example of cylinder sequencing. (10 Marks)

OR

- 6 a. Explain : (i) Polar configuration. (ii) Cylindrical configuration. (10 Marks)  
b. Explain : (i) Touch sensor (ii) Slip sensor with respect to industrial robot. (10 Marks)

### Module-4

- 7 a. Write the classification of Cam and follower. Explain compound gear train. (10 Marks)  
b. Explain types of belt drive system and write difference between belt and chain drive. (10 Marks)

OR

- 8 a. Explain with a neat sketch of cylinder sequencing using relays. (12 Marks)  
b. Explain Hybrid motors and servo motors. (08 Marks)

### Module-5

- 9 a. Explain with a neat sketch of Hydraulic system. (10 Marks)  
b. Explain with a neat sketch of (i) Lobe pump (ii) Screw pump. (10 Marks)

OR

- 10 a. Explain with neat sketch, (i). Poppet valve (ii) Check valve. (10 Marks)  
b. Sketch and explain compound pressure relief valve. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.