

B.Tech III Year II Semester (R15) Supplementary Examinations December/January 2018/2019

**MECHATRONICS**

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

- (a) Define mechatronics.
- (b) Write a short note on graphical user interface system.
- (c) List the merits and demerits of resistors.
- (d) Name any four applications of capacitors.
- (e) Write about hydraulic actuation system.
- (f) Give a short note on ball screw and nut actuation system.
- (g) Write about DC brushless motors.
- (h) What is meant by pulse width modulation?
- (i) Define microcontroller.
- (j) Give the selection parameters for PLC.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

2 With a proper sketch explain CIM and list its merits.

**OR**

3 Design and explain the pick and place robotic system with neat sketch.

**UNIT – II**

4 Describe the speed channels filtering noise using passive components.

**OR**

5 Elaborate the process of amplifying signals using OP amps.

**UNIT – III**

6 Explain electro pneumatic actuation system and list its merits and demerits.

**OR**

7 Explain hydraulic actuation system with a neat sketch.

**UNIT – IV**

8 Explain DC servo motors with the proper sketches.

**OR**

9 Explain DC brushed and brushless motors with proper sketches.

**UNIT – V**

10 Explain the pin diagram of 8051 microcontroller with a neat sketch.

**OR**

11 Explain the input processing, output processing and programming of PLC.

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