

Reg. No:

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech IV Year II Semester Supplementary Examinations May-2022**

**MECHATRONICS**

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

**UNIT-I**

- |   |   |  |           |           |
|---|---|--|-----------|-----------|
| 1 | a | Explain the various components of a mechatronics system. | <b>L2</b> | <b>6M</b> |
|   | b | How does a GUI work? And what are the benefits of GUI.   | <b>L2</b> | <b>6M</b> |

**OR**

- |   |   |  |           |           |
|---|---|--|-----------|-----------|
| 2 | a | What is operating system, GOPS, RTOS?          | <b>L1</b> | <b>6M</b> |
|   | b | What are the difference between GOPS and RTOS? | <b>L1</b> | <b>6M</b> |

**UNIT-II**

- |   |   |   |           |           |
|---|---|---|-----------|-----------|
| 3 | a | Illustrate of the functions of a signal conditioner.            | <b>L4</b> | <b>6M</b> |
|   | b | What is the difference between digital input and digital output | <b>L2</b> | <b>6M</b> |

**OR**

- |   |   |   |           |           |
|---|---|---|-----------|-----------|
| 4 | a | What is a DSP? What are the common features of DSP? | <b>L1</b> | <b>6M</b> |
|   | b | What are the properties of resistor?                | <b>L1</b> | <b>6M</b> |

**UNIT-III**

- |   |   |   |           |           |
|---|---|---|-----------|-----------|
| 5 | a | What are the advantages of pneumatic over hydraulic actuator? | <b>L1</b> | <b>6M</b> |
|   | b | How does solenoids work describe with neat sketch?            | <b>L2</b> | <b>6M</b> |

**OR**

- |   |   |   |           |           |
|---|---|---|-----------|-----------|
| 6 | a | Sketch OR valve construction and symbol and explain it. | <b>L3</b> | <b>6M</b> |
|   | b | What are the mechanical actuation system functions?     | <b>L1</b> | <b>6M</b> |

**UNIT-IV**

- |   |   |   |           |           |
|---|---|---|-----------|-----------|
| 7 | a | What does power supply mean?                            | <b>L4</b> | <b>6M</b> |
|   | b | What is MOSFET? Explain two functions with neat sketch. | <b>L1</b> | <b>6M</b> |

**OR**

- |   |   |   |           |           |
|---|---|---|-----------|-----------|
| 8 | a | Explain the working of bipolar transistor with neat sketch. | <b>L3</b> | <b>6M</b> |
|   | b | Explain the function of stepper motor with neat sketch.     | <b>L1</b> | <b>6M</b> |

**UNIT-V**

- |   |   |  |           |           |
|---|---|--|-----------|-----------|
| 9 | a | How does micro controller works?             | <b>L2</b> | <b>6M</b> |
|   | b | What are the elements of a micro controller? | <b>L1</b> | <b>6M</b> |

**OR**

- |    |   |   |           |           |
|----|---|---|-----------|-----------|
| 10 | a | What is the difference between ADC and DAC?       | <b>L2</b> | <b>6M</b> |
|    | b | Draw the flip flop shift register and explain it. | <b>L3</b> | <b>6M</b> |

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