

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester Supplementary Examinations June-2024
MECHATRONICS & ROBOTICS
(Mechanical Engineering)

Time: 3 Hours**Max. Marks: 60**

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

UNIT-I

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|---|---|---|-----|----|----|
| 1 | a | Describe the closed loop control system with neat sketch. | CO1 | L3 | 6M |
| | b | Differentiate between GPOS and RTOS. | CO1 | L1 | 6M |

OR

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|---|---|---|-----|----|----|
| 2 | a | Explain the functions of a strain gauge element with neat sketch. | CO1 | L3 | 6M |
| | b | Describe pneumatic sensor with neat sketch | CO1 | L3 | 6M |

UNIT-II

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|---|---|---|-----|----|----|
| 3 | a | Explain signal conditioning? Categorize the various processes occur in signal conditioning. | CO2 | L3 | 6M |
| | b | Write about electrical actuation system. | CO2 | L1 | 6M |

OR

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|---|---|---|-----|----|----|
| 4 | a | Write the function of resistors and draw symbol of fixed resistor with ANSI standard? | CO2 | L1 | 6M |
| | b | Show protection circuit and explain it with few features. | CO2 | L4 | 6M |

UNIT-III

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|---|---|--|-----|----|----|
| 5 | a | What is degree of freedom? Briefly explain it | CO3 | L1 | 6M |
| | b | Describe the factors to be considered in the design of grippers. | CO3 | L2 | 6M |

OR

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|---|--|---|-----|----|-----|
| 6 | | List the different types of joints used in robots with neat sketch. | CO3 | L3 | 12M |
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UNIT-IV

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|---|--|--|-----|----|-----|
| 7 | | Explain the steps involved in trajectory planning. | CO4 | L3 | 12M |
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OR

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|---|--|---|-----|----|-----|
| 8 | | Illuminate straight line motion with neat sketch. | CO4 | L3 | 12M |
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UNIT-V

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| 9 | | Illustrate the installation steps of robot programming. | CO5 | L2 | 12M |
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OR

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|----|--|---|-----|----|-----|
| 10 | | Illuminate the robot application in material transfer | CO5 | L1 | 12M |
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