

OCTOBER 2021

Time: Three hours

Maximum Marks: 75

- Note:
1. Answer ALL the questions in PART-A (1 mark each)
 2. Answer any ONE question from each unit in PART-B (3 marks each)
 3. Answer any ONE question from each unit in PART-C (10 marks each)
 4. The question paper contains TWO Pages

PART-A (1x10=10)

1. Classify robots.
2. Define SCARA
3. What is open loop controller?
4. Define Optical encoders.
5. Define tactile sensors.
6. Define proximity sensors.
7. What is motion interpolation?
8. Write short notes on robot language structure.
9. Write short notes on future of robotics.
10. Define universal hand system.

PART-B (3x5=15)

UNIT-I

11. Write short notes on history of robots
12. Explain the structural characteristics of robots.

UNIT-II

13. Explain about four type of controller.
14. Explain the following (a) D.C. servo motor
(b) Stepper motors.

UNIT-III

15. Write short notes on mechanical gripper.
16. Write short notes on Vacuum gripper.

UNIT-IV

17. Explain about motion specification.
18. Briefly explain about Textual robot language.

UNIT-V

19. Write short notes on direct drive robot.
20. Explain any two points about the future application of robots in military operations.

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PART-C (10x5=50)

UNIT-I

21. Write short notes on (a) Cartesian (b) Cylindrical (c) Spherical (d) Horizontal articulated (e) Vertical articulated.
22. Explain the conversion of linear and rotary motion with suitable device.

UNIT-II

23. Explain the operation of Hydraulic and Pneumatic drives with neat sketch.
24. Explain the working principle of Potentiometers with neat sketch.

UNIT-III

25. Explain the working principle of magnetic gripper. List the advantages and disadvantages.
26. List any ten points about the robotic applications.

UNIT-IV

27. Explain briefly about the capabilities and limitations of lead through methods.
28. What is subroutine? What does subroutine mean? Explain with example.

UNIT-V

29. Explain the working of assembly finishing - Adoptive robots to work station with neat sketch.
30. Briefly explain about the future application of robots in (a) under sea operations (b) space operations.
