

Register No.:

400

April 2024

Time – Three hours
(Maximum Marks: 100)

- [N.B. 1. Answer all questions under Part-A. Each question carries 3 marks.
2. Answer all the questions either (a) or (b) in Part-B. Each question carries 14 marks.]

PART – A

1. Draw robot architecture.
2. Define law of robotics.
3. Mention the key issues in locomotion
4. Define controllability.
5. What is an omnidirectional robot?
6. How do you represent robot position?
7. What are the challenges in mobile robotics?
8. List the uses of compasses in robot.
9. Why do we need approximate cell decomposition?
10. What is obstacle avoidance?

PART - B

11. (a) Explain about rotary actuators and intelligent robot control.
(Or)
(b) Discuss about terminologies of robotics.
12. (a) Explain about:
(i) Walking wheels of robots. (7)
(ii) Omnidirectional drive. (7)
(Or)
(b) Discuss about legged robot locomotion with suitable examples.
13. (a) Explain about mobile robot workspace and degrees of freedom.
(Or)
(b) Discuss about fixed standard wheel and steered standard wheel.
14. (a) Discuss about sensors for mobile robots and 2D sensor.
(Or)
(b) Write about optical encoders and global positioning system.
15. (a) Explain about road map path planning and bug algorithm.
(Or)
(b) Discuss about three-tiered episodic planning architecture with necessary diagram.
