Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 53686

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Seventh Semester

Robotics and Automation Engineering

RO 6702 — FIELD AND SERVICE ROBOTICS

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define service robot.
2. Brief non conventional industrial robots.
3. What is the map representation?
4. What do you mean by landmark based navigation?
5. List various types of path planning techniques.
6. What is obstacle avoidance?
7. Brief Ariel robots.
8. State is robotic technology?
9. Define humanoid robot with application.
10. What is Tactile sensing?

PART B — (5 × 13 = 65 marks)

11. (a) Explain in detail about the history of service robotics.

Or

(b) Explain the specification, application and example of service robot.

12. (a) Explain Monte Carlo localization with suitable diagram.

Or

(b) With neat sketch explain Route base localization.

13. (a) Explain in detail about the cell decomposition path planning and their types.

Or

(b) Explain tiered robot architectures.

14. (a) Explain impact of robots for agriculture with application.

Or

(b) (i) Write the application of robot in nuclear power plant. (6)

(ii) Explain about the underwater robotics. (7)

15. (a) Explain in detail about wheeled and legged robots and their types.

Or

(b) Explain Human activity recognition.

PART C — (1 × 15 = 15 marks)

16. (a) Construct a Robot for the purpose of military application and explain all parts and sensory embedded in this with suitable diagram.

Or

(b) Explain the construction and working principle of Robot used in biomedical application.