Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 16

B.Tech. (Ind. Engg. & Mgt. TQM)   (Sem.–5)
INDUSTRIAL AUTOMATION & ROBOTICS
Subject Code : IEM.501
M.Code : 70992

Time : 3 Hrs.   Max. Marks : 40

INSTRUCTIONS TO CANDIDATES :

1.   **Attempt All EIGHT Questions from SECTION-A carrying TWO marks each.**
2.   **Attempt any SIX questions out of EIGHT from SECTION-B carrying FOUR marks each.**

SECTION-A

Answer briefly :

1.   Define automation?

2.   Write a short note on pneumatic circuits?

3.   What do you mean by Boolean algebra and truth tables?

4.   Describe classification of robotics based on control and path movement?

5.   What do you mean by PLC?

6.   Write various industrial applications of robots?

7.   Describe elementary fluidic circuit?

8.   Describe Mountings in cylinders?

SECTION - B

9.   Define Robot. What are the characteristics of a robot?

10. What is the need for robots? Enlist benefits of robots?

11. Explain in detail degrees of freedom of a rigid body and degrees of freedom of a robot. Differentiate between these.

12. Explain the following in detail with respect to Robot Technology :

    (i) Robot anatomy and functional units

    (ii) Actuators

13. Explain with block diagram feedback control system.

14. Explain in detail the following :

    (i) AS/RS

    (ii) AGVs

15. Explain various robot programming languages.

16. Explain in detail :

    (i) Material Handling and processing

    (ii) Metal Cutting processes

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.