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

Total No. of Questions : 09

B.Tech. (Ind. Engg. & Mgt. (Spl. in TQM)) (PT)   (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

1. Write briefly :

    a. Explain the need of Automation in Industries.

    b. Discuss the industrial usage and applications of Pumps and compressors.

    c. Discuss the basic laws and principles of hydraulic systems.

    d. Discuss the various motions control systems of industrial robot.

    e. Discuss various principles of electric and electronic control systems.

    f. Discuss the concept of Machining Centres.

    g. Explain in brief the functions of AS/RS.

    h. Write in brief about PLC.

SECTION-B

2. What are end effectors and discuss its types with suitable diagrams?

3. Discuss the various design considerations of NC Machine tools.

4.   Discuss the concept of Low cost Automation using suitable industrial example.

5.   Discuss the industrial applications of robots in Packaging and Assembly using suitable examples?

6.   Discuss the differences between pneumatic and hydraulic automation systems?

7.   Write a short note on Transfer devices and discuss their industrial applications.

8.   Discuss the construction and working details of actuators used in Pneumatic systems.

9.   Discuss the scope and concept of CNC machines using suitable block diagram.

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.