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

Total No. of Questions : 18

B.Tech. (ME) (2012 Onwards) (Sem.–5)

INDUSTRIAL AUTOMATION AND ROBOTICS

Subject Code : BTME-504

M.Code : 70605

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1. Define Flexible Automation.
2. List basic types of hydraulic control circuits.
3. Draw standard graphical symbol tor a flow control valve.
4. Define Robotics.
5. Sketch the standard symbol for double acting pneumatic cylinder.
6. Draw sketch of cylindrical robot.
7. Write the truth table for OR gate.
8. Write a brief note on spray painting robots.
9. Write advantages of orienting devices.
10. What do you mean by robotic vision?

SECTION-B

11. (a) What is meant by coanda effect?

    (b) Sketch any fluidic device and explain its operation. State its applications.

12. What do you mean by flow control valve? Also explain its working.

13. Explain architecture of a Programmable Logic controller with the help of neat sketch.

14. What are the different configurations of robots? Discuss with the help of neat sketches.

15. Discuss the use of centrifugal hopper feeder with the help of diagram.

SECTION-C

16. Write short notes on :

    (a) Applications of hydraulics automation

    (b) Criteria used for the design of pneumatic systems.

17. Write short note on the following :

    (a) Truth table

    (b) Transfer devices

    (c) Ladder logic diagrams.

18. How is robotic vision sensed? What are the component systems used in most common vision based applications?

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.