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

Total No. of Questions : 09

B.Tech. (AE) (2011 Onwards E-II)   (Sem.–7,8)
AUTOMATION AND MECHATRONICS
Subject Code : BTAE/DE-713
M.Code : 71823

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

1. **Answer briefly :**

   (a) How Automation and Mechatronics related to each other?

   (b) What is shuttle valve explain with diagram?

   (c) What is a stepper Motor?

   (d) What is the role of Teach Pendent Box in robotics?

   (e) Explain the function of PLC?

   (f) What is work envelope of robotic arm?

   (g) Give the classification of robots based on path movement.

   (h) Give the difference between seat type and spool type valves.

   (i) Explain the Socio economic consideration of industrial Automation.

   (j) What do you mean by Data Acquisition?

SECTION-B

2. Explain the working of Simple Servo system with mechanical feedback with suitable diagram.

3. Discuss various logic functions used in PLC.

4. Explain different types of sensors used in robots.

5. Discuss the applications of industrial robots in material transfer and machine loading/unloading.

6. Explain with suitable diagram the function of teach pendant box.

SECTION-C

7. What are Robotic End-effectors? Give its types and applications?

8. Discuss basic structure and working of single acting and double acting cylinders?

9. Discuss the applications of personal computers in various control and automations functions.

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.