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

Total No. of Questions : 09

B.Tech.(ECE) (2011 Batch E-III)/(ETE) (2011 Onwards E-III) (Sem.–7,8)

ROBOTICS

Subject Code :BTEC-917

M.Code : 71922

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTION 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. What is meant by work Envelop?

   b. What is piezoelectric sensor?

   c. What are the different parts of robotic arm?

   d. What is Forward Kinematics Explain.

   e. Explain about Hydraulic actuators.

   f. What are the methods of Robot Programming?

   g. List applications of Robot.

   h. What do you understand by Hall Effect?

   i. Compare pneumatic drive robots with stepper motor drive robots.

   j. What is the difference between internal grippers and external grippers?

SECTION-B

2. Discuss about Vaccum Grippers along with their advantages and disadvantages.

3. With the help of line diagram, explain basic components of a Robot system.

4. Discuss about direct and inverse kinematics.

5. Explain the operation of optical encoder used in robot as a feedback device.

6. What are Requirements and challenges of end effectors?

SECTION-C

7. Discuss the salient features, capabilities, applications, merits and limitations of Stepper and Servo motors.

8. Derive the Inverse kinematics of the 3-DOF manipulator by considering an example.

9. Describe the classification of sensors and the factors to be considered for its selection.

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.