BIMEE-016

B.Tech. – VIEP – MECHANICAL ENGINEERING (BTMEVI)

Term-End Examination

December, 2014

00865

BIMEE-016 : ROBOTICS

Time : 3 hours   *Maximum Marks : 70*

*Note : Attempt any **five** questions. All questions carry equal marks.*

1. (a)   List the objectives of using Industrial Robots, giving advantages and limitations of the same.   7

    (b)   Describe the different types of joints of a robot with appropriate figures.   7

2.   Define the following : $4 \times 3\frac{1}{2} = 14$

    (a)   Degree of freedom

    (b)   Work-envelope

    (c)   End-effectors

    (d)   Articulated structure

3. (a) What are the features and applications of hydraulic actuators used in robotic motion controls ? 7

   (b) Describe the various types of drives used in an Industrial Robot. 7

4. (a) What do you mean by Robot Vision ? Explain briefly. 7

   (b) Explain how robotic programming is done using a high level language. 7

5. (a) Explain workplace design considerations for safety associated with the Industrial Robots. 7

   (b) Explain the safety monitoring of robots. 7

6. (a) Describe robot's kinematic control. 7

   (b) Describe briefly robots with jointed arm co-ordinate system. 7

7. (a) Explain the various drive methods used for robot gripper system. 7

   (b) Describe the various kinds of sensors used in robotics. 7