

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

00173

Term-End Examination

December, 2016

BIMEE-016 : ROBOTICS

Time : 3 hours

Maximum Marks : 70

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

1. (a) Discuss various characteristics of a robot. How do you improve the performance of a robot? 7
- (b) Explain the advantages and disadvantages of industrial robots. 7
2. (a) Describe the mechanical design considerations associated with a robot. 7
- (b) Describe the different types of joints of a robot with appropriate figures. 7
3. (a) Briefly discuss different programming languages used in robots. 7
- (b) Explain the commonly used robot configuration and coordinate systems. 7

4. (a) Explain the various techniques of image processing and analysis in a robot system. 7
- (b) What is a resolver ? State its applications. 7
5. (a) Explain the working of pneumatic drive in a robot system with neat sketch. 7
- (b) Describe the scheme of various robot sensors with neat sketch. 7
6. (a) Explain the various drive methods used for robot gripper systems. 7
- (b) Explain how robots can be used in hazardous and hostile working conditions. 7
7. Write short notes on any **four** of the following : $4 \times 3 \frac{1}{2} = 14$
- (a) Electric Drive
- (b) Robot Control Techniques
- (c) Artificial Intelligence in Robot System
- (d) Machine Vision in Robot System
- (e) Feedback Control
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