

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

Term-End Examination

June, 2014

BIMEE-016 : ROBOTICS

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks.

1. (a) Explain briefly 'SCARA' Robot. 7
(b) Give the classification of Robots on the basis of mechanical configuration. What elements are used in describing Robot specifications ? 7
2. (a) With the help of neat sketch explain the basic components of a robot connected to a manufacturing system. 7
(b) Describe the mechanical design considerations associated with a robot. 7
3. (a) Explain the feedback control system used in Robotic automation environment. 7
(b) Explain briefly with neat diagrams, the hydraulic system having : 7
(i) Constant delivery pump.
(ii) Variable delivery pump.
4. (a) Explain with the help of neat diagram, the scheme of various robot sensors. 7
(b) Describe various AI systems used in Robotics. 7

5. (a) What are the potential safety hazards associated with robots in welding industry ? Describe in brief. 7
- (b) Describe the recent trends and developments in safety measurement of an Automobile industry deploying Robots. 7
6. (a) Explain briefly the architecture of a computer-based intelligent robotic manipulator. 7
- (b) State the desirable features for Sensors and Transducers employed in robotics. 7
7. (a) Write a program for a typical PNP (Pick and Place) activity performed by a robot. 7
- (b) Give a comparison between robot-oriented programming language and task-level programming languages. 7
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