GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII • EXAMINATION – WINTER • 2014

Subject Code: 173402   **Date: 27-11-2014**

Subject Name: Industrial Robotics

Time: 10:30 am - 01:00 pm   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Define Robotics. State law of Robotics and explain advantages, disadvantages and application of robotics?	**07**
	(b)	Define: 1) Degree of freedom, 2) Controller, 3) Pitch motion, 4) Roll motion, 5) Yaw, 6) Wrist and 7) Response time.	**07**
Q.2	**(a)**	Define end effectors and explain about types of end effectors.	**07**
	(b)	Explain and name the components of Pneumatic systems.	**07**
		OR	
	(b)	Define servomotor. Give its types and explain any two.	**07**
Q.3	**(a)**	Explain briefly about image processing in robotics.	**07**
	(b)	Explain any two range sensing techniques.	**07**
		OR	
Q.3	**(a)**	What are the advantages and application of machine vision?	**07**
	(b)	Explain the components of vision system with diagram.	**07**
Q.4	**(a)**	Explain briefly about motion programming in robotics.	**07**
	(b)	Explain AML, VAL, RAIL robot languages.	**07**
		OR	
Q.4	**(a)**	Draw the basic control block diagram for robot manipulators and explain.	**07**
	(b)	Explain robot arm kinematics?	**07**
Q.5	**(a)**	Discuss briefly about robot safety.	**07**
	(b)	Explain AGVs and write its applications.	**07**
		OR	
Q.5	**(a)**	Gives names of economic analysis method for robots and explain any one.	**07**
	(b)	Enlist the components/layout of robot task planning.	**07**

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