Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER VII EXAMINATION – SUMMER 2015

Subject Code: 170306 Subject Name: Robotics and Artificial Intelligence Time: 2.30pm-5.00pm Instructions:			Date:06/05/2015 Total Marks: 70	
		30pm-5.00pm Total Marks:		
		Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a) (b)	Explain Robot classification. Define: (i) Dot Product (ii) Orthogonality (iii) Completeness (iv) Cross product	07 07	
Q.2	(a) (b)	Explain linear interpolation with parabolic blends. Explain composite homogeneous transformations. OR	07 07	
	(b)	Explain screw transformations.	07	
Q.3	(a) (b)	Explain the arm equation in detail. Explain a four axis SCARA robot.	07 07	
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Q.3	(a) (b)	Explain general properties of solution. Explain pick and place operation.	07 07	
Q.4	(a) (b)	Explain the concentric layout of multiple part feeders. Describe common characteristics of robot specification. OR	07 07	
Q.4	(a)	What is artificial intelligence? Explain various problem solution techniques used in AI.	07	
	(b)	Define: Production system. Explain characteristics of production system.	07	
Q.5	(a) (b)	What is expert system? Explain any one expert system. What is task level programming? Explain task planning problem. OR	07 07	
Q.5	(a) (b)	Explain applications of AI in biomedical engineering. Explain: (i) Grasp planning (ii) Fine motion planning	07 07	
