Seat No.:		Enrolment No
GUJARAT TECHNOLOGIC		TECHNOLOGICAL UNIVERSITY

ME - SEMESTER- II (Old course) • REMEDIAL EXAMINATION - SUMMER 2015 **Subject Code: 1725001** Date: 12/05/2015 **Subject Name: Robotics and Artificial Intelligence** Time: 02:30 pm to 5:00 pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks (a) Explain the various types of gripper mechanism. Explain design procedure of 0.1 **07** anyone in detail with neat sketch. **(b)** Define Robot. Compare hard automation and soft automation 07 (a) List and Explain the different types of drives used in Robot. Also compare them 0.207 critically. (b) Explain Direct & Inverse kinematics with transformation matrix for two **07** revolute joint robotic arm (2-DOF). **(b)** Explain in detail õD-H representation of forward kinematicsö with algorithm. 07 (a) Explain different factors which influence the selection and design of grippers. 07 0.3(b) Explain with neat sketch õCharged Coupled Deviceö (CCD) in vision system. 07 Q.3(a) What is the Importance of the Interlocks? Explain different types of Interlocks **07** & their uses in detail. **(b)** Write short note on ó õProximity and range sensorsö. 07 0.4 (a) Explain õLead Through Programming Methodsö. 07 **(b)** List the methods of Economic Analysis & Explain any one method. 07 OR**Q.4** Step-by-step explain the Image Processing of machine vision. 07 (a) Explain the different applications of AI in manufacturing and the use of 07 different softwares in AI. (a) List and Explain the different problem characteristics. 0.5 07 **(b)** Solve 8-puzzle problem using Breadth-First method. 07 OR Q.5 (a) Advantages & Disadvantages of Breadth-First search method & depth-First 07 search methods. (b) List out the heuristic search techniques. Explain Hill climbing technique by 07 taking a real life problem.
