| Seat No.: | Enrolment No |
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GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

| Subject Code: 2710212 Subject Name: Artificial Intelligence Time: 2:30 pm to 5:00 pm Instructions: | | | Date:06/01/2017 Total Marks: 70 | |
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| | | 2:30 pm to 5:00 pm Total Marks: | | |
| | | Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. | | |
| Q.1 | (a) (b) | Explain how problems can be represented in AI. Explain depth-first search technique along with its algorithm. What are the advantages and drawback of depth-first search? | 07 07 | |
| Q.2 | (a) | Explain heuristic function. Give heuristic function for 8-puzzle and tic-tac-toe problem. | 07 | |
| | (b) | Differentiate between hill-climbing and best-first algorithms. OR | 07 | |
| | (b) | Explain the following terms in game playing with examples.(i) Minimax (Position, Depth, Player)(ii) Deep Enough (Position, Depth) | 07 | |
| Q.3 | (a) | How the minimax and alpha-beta prunings are done on tree? Explain with example. | 07 | |
| | (b) | What are the different types of resolution? OR | 07 | |
| Q.3 | (a) | Explain semantic net. Represent the following sentence in semantic net representation - "John gave the book to Marry" | 07 | |
| | (b) | What are the factors which influence a system's ability to learn? | 07 | |
| Q.4 | (a) (b) | What do you mean by probabilistic reasoning? Give an example. Explain how reasoning can be done using fuzzy logic. OR | 07 07 | |
| Q.4 | (a) (b) | Differentiate between forward and backward reasoning. Explain cross-correlation of two random processes and its significance in artificial intelligence. | 07 07 | |
| Q.5 | (a) (b) | Name the various types of expert systems and explain any one of them in detail. Give structure of an expert system, explain its components. OR | 07 07 | |
| Q.5 | (a) (b) | What is neural network? Write its various applications. Define fuzzy set theory. Differentiate fuzzy sets with crisp sets with examples. | 07 07 | |
