

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2180703

Date: 26/11/2018

Subject Name: Artificial Intelligence

Time: 02:30 PM TO 05:00 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 and discuss different task domain of artificial intelligence. | 03 |
| (b) | Explain Depth first search algorithm. | 04 |
| (c) | Explain state space representation using water jug problem. | 07 |

- Q.2**
- | | | |
|-----|--|-----------|
| (a) | Differentiate Hill climbing and Best First search method. | 03 |
| (b) | Discuss the different approaches to knowledge representation | 04 |
| (c) | What is production system? Explain it with an example. Discuss the characteristics of a production system. | 07 |

OR

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|------------|--|-----------|
| (c) | Explain mean-end analysis approach to solve AI problems. | 07 |
| Q.3 | (a) Differentiate between Procedural and Declarative representation of knowledge. | 03 |
| | (b) Justify using an example that Prolog uses Backward chaining to prove or answer any given goal. | 04 |
| | (c) Explain the procedure to convert well formed formula to clause form with the help of example. | 07 |

OR

- Q.3**
- | | | |
|------------|---|-----------|
| (a) | What do you mean by admissibility of an algorithm? Is A* algorithm an admissible one? When? | 03 |
| (b) | Differentiate Monotonic and Non monotonic reasoning. | 04 |
| (c) | Explain Resolution in predicate logic. | 07 |
| Q.4 | (a) Explain Semantic and Syntactic analysis in NLP. | 03 |
| | (b) Discuss Alpha-Beta cutoffs procedure in game playing. | 04 |
| | (c) List and explain the application of neural network. | 07 |

OR

- Q.4**
- | | | |
|-----|---|-----------|
| (a) | Discuss Fail predicate in prolog. | 03 |
| (b) | Write a short note on Semantic Net. | 04 |
| (c) | Explain theory of Conceptual Dependency with the help of example. | 07 |

- Q.5**
- | | | |
|-----|---|-----------|
| (a) | Differentiate Supervised and Unsupervised learning. | 03 |
| (b) | Discuss Goal Stack Planning. | 04 |
| (c) | Discuss how the following list function can be implemented in Prolog.
1. Append 2. Reverse | 07 |

OR

- Q.5**
- | | | |
|-----|---|-----------|
| (a) | Explain following terms with reference to Prolog programming language: Clauses, Predicates, Domains | 03 |
| (b) | Explain Bay's theorem. | 04 |
| (c) | Explain Min Max procedure in game playing. | 07 |
