Seat No.: _____ Enrolment No._____

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	
	(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**

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