Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER- II(Old course) • EXAMINATION (Remedial) - WINTER- 2015

Subject Code: 1720203			Date: 11/12/2015	
Tiı	ne: 2: structio 1. 2.	Name: Artificial Intelligence 30 pm to 5:00 pm Total Marks: 70 ns: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a)	Explain the types of problems solved by AI techniques and ito characteristics by which to classify them into different categories and classes.	07	
	(b)	Explain AO* algorithm.	07	
Q.2	(a)	Define: joint probability, marginal probability, conditional probability, conditional independence, bayes network, forward reasoning, backward reasoning.	07	
	(b)	Explain Iterative Deepening with suitable example. What is its advantage over BFS and DFS?	07	
	(b)	OR Explain recursive best first search with suitable example.	07	
Q.3	(a)	Show the partial state space to solve the given Block World problem using Hill Climbing and Steepest Ascent Hill Climbing.	07	
		Start A Goal D C C B A		
	(b)	Solve given crypt arithmetic problem using constraint satisfaction. SEND + MORE	07	
		M O N E Y OR		
Q.3	(a)	Justify the statement with suitable example. A* algorithm is not terminated when goal node is found but terminated when goal node is selected for expansion.	07	
	(b)	Solve given crypt arithmetic problem using constraint satisfaction. I N D I A + P A K	07	
		P E A C E		

Attempt to unify the following pairs of expressions either with their most general 07 0.4 unifiers or explain why they will not unify. (1) p(X,Y) and p(a,Z)(2) p(X,X) and p(a,b)(3) Ancestor(X, Y) and Ancestor(Lovex, Father(Lovex)). (4) Ancestor(X, Father(X)) and Ancestor(Rama, Sita). (b) A two player game tree is shown below. Using alpha-beta pruning, find which 07 nodes need not be examined. OR **Q.4** (i) Give five examples of facts that are difficult to represent and manipulate in 05 (a) predicate logic. (ii) Define: Resolution, Horn clauses. 02 Consider the following facts. 07 1. The members of the LA Club are Jatin, Sanjana, Brijesh and Ekta. 2. Jatin is married to Sanjana. 3. Brijes is Ektaøs brother. 4. The spouse of every married person in the club is also in the club. 5. The last meeting of the club was at Jatings house. (i) Represent these facts in predicate logic. (ii) Prove by resolution that The last meeting of the club was at Sanjana's house. 1. Define: crisp set, fuzzy set, membership function, fuzzification, 05 Q.5 (a) defuzzification. 2. Give just name of any two fuzzification methods. 02 Explain structure and learning method used in perceptron. 07 Q.5 (i) What are the characteristics of Genetic Algorithms? 04 (ii) What are the stopping criteria in exploring the search space using GA? 03

Explain Verification, Validation and Design of Expert System.

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