Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA Integrated - VII– EXAMINATION – SUMMER - 2017

Subject Code: 4470601 **Date:29/04/2017**

Subject Name: Machine Learning

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)**	What is Machine Learning? List advantages and limitations of the Machine Learning.	**07**
	(b)	Explain step by step general processes one has to follow for completing a supervised machine learning project.	**07**
Q.2	**(a)**	Explain working of Candidate- Elimination algorithm. Compare it with FIND-S algorithm.	**07**
	(b)	What is Information Gain (IG)? Explain with example addressing calculation of Information Gain and its usage for selection of attributes.	**07**
		OR	
	(b)	What is perceptron? What is Back Propagation Neural Network (BPNN)? What is the differences between both of them?	**07**
Q.3	**(a)**	Derive the weight update rule for BPNN.	**07**
	(b)	What is BAYESIAN belief network? Explain with example.	**07**
		OR	
Q.3	**(a)**	Draw the perceptron network with three inputs & three output units. Write the formulas for calculating errors at each output unit and updating the weights.	**07**
	(b)	What is Probably Approximately Correct framework(PAC)? Explain with details.	**07**
Q.4	**(a)**	Explain K- Nearest Neighbor Learning algorithm.	**07**
	(b)	What is Case –Based Reasoning (CBR)? How it helps in learning? Explain with suitable example.	**07**
		OR	
Q.4	**(a)**	What is Eager Learning method? Explain any one Eager Learning method.	**07**
	(b)	What is sequential learning algorithm? Explain with help of Learn-One-Rule paradigm.	**07**
Q.5	**(a)**	What is First-Order Horn Clauses? How it helps in learning? Explain with example.	**07**
	(b)	Explain Explanation based learning with help of PROLOG-EBG algorithm.	**07**
		OR	
Q.5	**(a)**	Explain First Order Combined Learner (FOCL) algorithm with example.	**07**
	(b)	What is reinforcement learning? What is the purpose of reward in this kind of learning? List 3 situations where this kind of learning is required.	**07**

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