

**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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