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**Module-2**

- 3 a. Explain in detail perceptron based ANN system its representation and training rule. (08 Marks)  
b. Explain Back propagation algorithm in detail. (08 Marks)
- OR**
- 4 a. Describe in detail a prototypical genetic algorithm. (08 Marks)  
b. Explain genetic programming with example. (08 Marks)

**Module-3**

- 5 a. What is the relationship between Bayes theorem and problem of concept learning? Explain in detail. (08 Marks)  
b. Explain likelihood hypothesis for predicting probabilities. (08 Marks)
- OR**
- 6 a. Explain Naïve Bayes classifier by applying it to a concept-learning problem. Use table I and novel instance <Outlook = sunny, Temp = cool, Humidity = high, Wind = strong>. (08 Marks)  
b. Explain the EM algorithm in detail. (08 Marks)

**Module-4**

- 7 a. Explain k-nearest neighbor learning algorithm with example. (08 Marks)  
b. Describe the method of learning using locally weighted linear regression. (08 Marks)
- OR**
- 8 a. Explain learning sets of First-order rules in detail with example. (08 Marks)  
b. Explain how inverting resolution constructs hypotheses by inverting a deductive inference rule. (08 Marks)

**Module-5**

- 9 a. Compare inductive learning and analytical learning. (08 Marks)  
b. Explain the explanation-based learning algorithm PROLOG-EBG. (08 Marks)
- OR**
- 10 a. Explain the Q functions and Q learning algorithm. (08 Marks)  
b. Explain Q learning for non deterministic Markov Decision Process (MDP). (08 Marks)

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