

Code No: 158DN

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year II Semester Examinations, September - 2022****MACHINE LEARNING****(Common to EEE, ECE)****Time: 3 Hours****Max.Marks:75**

**Answer any five questions  
All questions carry equal marks**

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- 1.a) What is machine learning? Discuss the perspectives and issues in machine learning.  
b) Demonstrate the decision tree representation for a learning problem. [8+7]
- 2.a) What are the well posed learning problems? Describe the design aspects of a learning system.  
b) Explain how hypothesis space search is carried in decision tree learning. [8+7]
- 3.a) Write the basics of sampling theory.  
b) Illustrate the back-propagation algorithm with an example. [7+8]
- 4.a) Describe the general approach for deriving confidence intervals.  
b) Compare and contrast different learning algorithms. [8+7]
- 5.a) Explain k-nearest neighbor learning algorithm with an example.  
b) What is the significance of minimum description length principle? Explain. [7+8]
- 6.a) Explain about Naïve Bayes classifier with an example.  
b) Differences between Eager Learning and Lazy learning approaches. [7+8]
- 7.a) Explain genetic algorithm with an illustrative example.  
b) What is Reinforcement learning? Discuss the significance of Q-learning. [7+8]
- 8.a) What are the inductive-analytical approaches to learning? Explain.  
b) Discuss explanation-based learning algorithm PROLOG-EBG with a suitable example. [7+8]

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