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**GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING (AUTONOMOUS)**

Madhurawada, Visakhapatnam

Affiliated to JNT University – K, Kakinada

**B.Tech VI Semester Regular Examinations, May 2023****Machine Learning****(Computer Science and Engineering)****Date: 15-05-2023****Time: 3 Hours****Max. Marks: 70**

1. Answer ONE Question from each UNIT
2. All parts of a Question must be answered at one place to get valued.
3. All questions carry equal marks.

**UNIT-I**

1. a) What is Machine Learning? Explain different perspective and issues in machine learning. 7 Marks  
b) Discuss about CRISP-DM Process Model. 7 Marks
2. a) List and explain the steps to design learning systems in detail. 7 Marks  
b) Explain briefly Machine Learning methods with a neat sketch. 7 Marks

**UNIT-II**

3. a) Explain Occam's Razor Principle and overfitting avoidance. 7 Marks  
b) Write short notes on Estimating Generalization Errors. 7 Marks
4. a) Illustrate Heuristic search in Inductive Learning. 7 Marks  
b) Explain about bias and variance trade-off. 7 Marks

**UNIT-III**

5. a) Define a Feature. Explain the various types of Features. 7 Marks  
b) Explain about Thresholding and Discretisation. 7 Marks
6. a) Explain Feature Engineering on Text Data and Temporal Data. 7 Marks  
b) Explain briefly about Feature Selection Process. 7 Marks

**UNIT-IV**

7. a) Explain about Linear maximal margin classifier for linearly separable data. 7 Marks  
b) Discuss Bagging technique with an example. 7 Marks
8. a) Explain about kernel induced features spaces. 7 Marks  
b) Discuss Boosting technique with an example. 7 Marks

**UNIT-V**

9. a) Distinguish Biological neuron and Artificial neuron. 7 Marks  
b) Discuss about Multi-Layer perceptron with a neat sketch. 7 Marks
10. a) Write short notes on Perceptron with a neat sketch. 7 Marks  
b) Explain Multi-class Discrimination with MLP Networks. 7 Marks