

G. Narayanamma Institute of Technology & Science**(Autonomous)****(for Women)**

Shaikpet, Hyderabad- 500 104

III-B.Tech II-Semester Regular/Supplementary Examinations, May- 2024**MACHINE LEARNING****(Common to CSE & CST)****Max. Marks: 70****Time: 03 Hours****Note:**

1. Question paper comprises of **Part A** and **Part B**.
2. **Part A** is compulsory which carries 10 marks. Answer all questions in Part A.
3. **Part B** (for 60 marks) consists of **five questions** with **“either” “or”** pattern. Each question carries 12 marks and may have a,b,c as sub questions. The student has to answer any one full question.

PART-A*(Answer 05 questions. Each question carries 2 marks)*

Q.No.	Question	Marks	CO	B L
Q.1	a) Define Well-Posed problem. Illustrate an example for Well-Posed problem.	[02]	CO1	[L1]
	b) Explain the issues in decision tree learning.	[02]	CO4	[L2]
	c) What is PAC hypothesis?	[02]	CO6	[L2]
	d) What are the limitations of Explanation-based learning?	[02]	CO3	[L1]
	e) Why are Genetic Algorithms popular?	[02]	CO6	[L1]

END OF PART A**PART-B***(Answer 05 full questions. Each question carries 12 marks)*

Q.No.	Question	Marks	CO	B L
Q.2(a)	Which disciplines have their influence on machine learning? Explain with examples.	[06]	CO1	[L2]
(b)	Define Learning. Categorize various types of learning.	[06]	CO5	[L2]
OR				
Q.3(a)	What is Version Space? Illustrate Candidate Elimination algorithm with an example.	[06]	CO3	[L3]
(b)	Explain the Find-S: Finding a Maximally Specific Hypothesis in detail.	[06]	CO3	[L2]

- Q.4(a)** Contrast the hypothesis space search in ID3 and candidate elimination algorithm. [08] CO4 [L4]
- (b)** Explain how to estimate hypothesis accuracy. [04] CO2 [L2]

OR

- Q.5(a)** Briefly explain the need of Inductive Bias in decision Tree Learning. [06] CO3 [L2]
- (b)** Analyze the impact of overfitting in a typical application of decision tree learning. [06] CO2 [L4]

-
- Q.6(a)** Explain the features of Bayesian learning methods. [04] CO5 [L2]
- (b)** Discuss the relationship between the maximum likelihood hypothesis and the least squared error hypothesis. [08] CO4 [L4]

OR

- Q.7(a)** Explain Gibbs algorithm with an example. [04] CO5 [L3]
- (b)** State and explain the Minimum Description Length Principle. [08] CO3 [L2]

-
- Q.8(a)** Explain Curse of Dimensionality as a difficulty in KNN algorithm. [04] CO6 [L2]
- (b)** Discuss Locally weighted regression with an illustrated example. [08] CO6 [L2]

OR

- Q.9(a)** What is Analytical Learning? How are Analytical Learning problems different from Inductive learning problems? [06] CO4 [L4]
- (b)** Differentiate Lazy and Eager learning methods. [06] CO4 [L4]

- Q.10(a)** Explain genetic algorithm in GABIL system. [04] CO6 [L2]
- (b)** Discuss the importance of fitness function with an example. [08] CO3 [L3]

OR

- Q.11(a)** Discuss about Hypothesis space search in genetic algorithm. [06] CO6 [L3]
- (b)** Consider two strings as initial population for Genetic Algorithm and generate all possible off springs using various operators in detail.
String 1: 11101001000 String 2: 00001010101 [06] CO6 [L4]

END OF PART B

END OF THE QUESTION PAPER