

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

Shaikpet, Hyderabad- 500 104

III-B.Tech II-Semester Supplementary Examinations, May-2025.**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	BTL
Q.1	a) List two perspectives or issues in machine learning.	[02]	CO1	[L1]
	b) Explain the concept of inductive bias in decision tree learning.	[02]	CO2	[L2]
	c) What is the Minimum Description Length Principle?	[02]	CO3	[L2]
	d) Define Eager learning.	[02]	CO4	[L1]
	e) Define term Genetic.	[02]	CO5	[L1]

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

Q. No.	Question	Marks	CO	BTL
Q.2(a)	Define machine Learning? Explain the two uses of features in machine learning.	[06]	CO1	[L2]
(b)	Describe the four major types of machine learning paradigms.	[06]	CO2	[L1]
OR				
Q.3(a)	What is a maximally specific hypothesis in concept learning? Describe the process of finding a maximally specific hypothesis with an example.	[06]	CO2	[L2]
(b)	What are the concepts of learning as search? Discuss with an example.	[06]	CO2	[L3]

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Q.4(a)	Briefly explain the need of Inductive Bias in decision Tree Learning.	[06]	CO3	[L4]
(b)	Discuss in detail about representation of Neural Networks.	[06]	CO6	[L2]
OR				
Q.5(a)	Explain the issues in decision tree learning.	[06]	CO3	[L2]
(b)	Compare and contrast various activation functions used in artificial neural networks. Discuss their significance and impact on network performance.	[06]	CO5	[L4]
Q.6(a)	Explain Gibbs algorithm with an example.	[06]	CO3	[L3]
(b)	Explain the basic steps of the EM algorithm, including the E-step (Expectation step) and M-step (Maximization step) and its purpose in Machine learning.	[06]	CO3	[L3]
OR				
Q.7(a)	Describe PAC learnability.	[06]	CO3	[L2]
(b)	Describe the mistake bound model of learning.	[06]	CO3	[L2]
Q.8(a)	Describe briefly about k-nearest neighbor algorithm.	[06]	CO4	[L2]
(b)	Compare and contrast eager and instance-based learning. Give one examples for each.	[06]	CO4	[L4]
OR				
Q.9(a)	Discuss the concept of sample complexity in finite and infinite hypothesis spaces.	[06]	CO4	[L2]
(b)	Explain the concept of locally weighted regression in detail. Discuss its working mechanism and outline its key advantages and disadvantages.	[06]	CO4	[L3]
Q.10(a)	Describe the Genetic Algorithm (GA) steps using the Population, Fitness function, other necessary data and hypothesis it returns.	[06]	CO5	[L2]
(b)	Define Learning. Explain in brief about Models of Evolution and learning with suitable example .	[06]	CO5	[L3]
OR				
Q.11(a)	What is genetic programming? How can you represent Genetic programs? Give an example.	[06]	CO5	[L3]
(b)	Discuss about Genetic Operators.	[06]	CO6	[L2]

END OF PART B
END OF THE QUESTION PAPER