Code No: 156BN **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, July - 2023

MACHINE LEARNING

(Common to CSE, CSIT, CSE(CS), CSE(DS))

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	Define Well-Posed problem.	[2]
b)	Write about inductive bias.	[3]
c)	Define sampling theory.	[2]
d)	What is hypothesis?	[3]
e)	State Baye's theorem.	[2]
f)	Define the terms 'estimation bias' and 'confidence intervals'.	[3]
g)	Define term Genetic.	[2]
h)	What is FOIL?	[3]
i)	Write about control knowledge.	[2]
j)	Define Analytical Learning.	[3]

PART – B

(50 Marks)

2.a)	Explain the two uses of features in machine learning.	
b)	What are the concepts of learning as search? Discuss.	[5+5]
	OR	
3.a)	Briefly explain the need of Inductive Bias in decision Tree Learning.	
b)	Explain the Find-S: Finding a Maximally Specific Hypothesis in detail.	[5+5]
4.a)	Explain back-propagation algorithm in detail.	
b)	Explain the methods for comparing the accuracy of two hypotheses.	[5+5]
	OR	
5.	Discuss in detail about representation of Neural Networks.	[10]
6.	Describe the Naive Bayesian method of classification. What assumptions does this method make about the classification? Give an example where this assumption is to justify.	[10]
	OR	
7.a)	Write the differences between Eager Learning and Lazy Learning approaches.	
b)	Discuss about Bayesian belief networks.	[5+5]

8.a) Write the basic algorithm for learning sets of First-Order Rules.

b) Apply inverse resolution in propositional form to the clauses C=A B, C1=A B G. Give at least two possible results for C2. [5+5]

OR

9.a) Discuss about Q–learning, in detail.

b) Explain about the hypothesis space search. [5+5]

10. What are the differences between inductive learning and analytical learning problems and explain the same with an example. [10]

OR

11.a) Explain how to initialize the hypothesis by using prior knowledge.

b) Discuss Explanation-Based learning of search control knowledge. [5+5]

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