Code No: M157AB **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, January/February - 2023
MACHINE LEARNING
(Minor Program in Artificial Intelligence and Machine Learning)

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)	What is Machine learning?	[2]
b)	Explain about version spaces and its remarks.	[3]
c)	What is perceptron? Explain.	[2]
d)	How to estimate hypothesis accuracy?	[3]
e)	What radial basis function? Explain.	[2]
f)	State Baye's theorem.	[3]
g)	Explain about FOIL.	[2]
h)	Explain about reinforcement learning.	[3]
i)	What is inductive learning?	[2]
j)	Write remarks about explanation based learning.	[3]

PART – B

(50 Marks)

2.a)	Illustrate any four examples for Well-Posed problems.	
b)	Explain the decision tree representation for a learning problem.	[5+5]
	OR	
3.a)	Explain different perspectives and issues in machine learning.	
b)	Describe the candidate elimination algorithm and its limitations.	[5+5]
4.a)	What are the appropriate problems for neural network learning? Discuss.	
b)	Describe the general approach for deriving confidence intervals.	[5+5]
	OR	
5.a)	Explain Back-Propagation algorithm with an illustrative example.	
b)	Compare and contrast various learning algorithms.	[5+5]
6.a)	State and explain the Minimum Description Length Principle.	
b)	Illustrate K-Nearest Neighbor learning and classification.	[5+5]
	OR	
7.a)	Explain about the maximum likelihood hypothesis for predicting probabilities in Bayesian learning.	
b)	Discuss about the Gib's algorithm in detail.	[5+5]

8.a) Represent the learning first order rules in a rule induction algorithm.
b) Explain Hypothesis space search in genetic algorithms. [5+5]

OR

9.a) Write the sequential covering algorithm for learning disjunctive set of rules.
b) Demonstrate the use of genetic algorithm with example. [5+5]

10.a) Discuss Explanation-Based learning of search control knowledge.
b) What are the inductive-analytical approaches to learning? Explain. [5+5]

OR

11.a) Illustrate about using prior knowledge to alter the search objectives.
b) Discuss about PROLOG-EBG with a suitable example. [5+5]

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