Code No: 155BZ **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, January/February - 2023
MACHINE LEARNING
(Computer Science and Engineering – 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)	Define LMS weight update rule.	[2]
b)	List the advantages of converting decision trees to rules before pruning.	[3]
c)	Define sample error, true error.	[2]
d)	What set of functions can be represented by feedforward networks?	[3]
e)	List the properties of case-based reasoning systems.	[2]
f)	Outline Bayesian Belief network.	[3]
g)	Define Fitness Function and selection.	[2]
h)	List the aspects of reinforcement learning.	[3]
i)	List two stages of the KBANN algorithm.	[2]
j)	What is inductive Bias in explanation-based learning?	[3]

PART – B

(50 Marks)

2.a)	Describe the final design modules of learning systems.	
b)	How to Incorporate Continuous valued attributes in decision tree learning?	[6+4]
	OR	
3.	Illustrate the Candidate-Elimination algorithm.	[10]
4.a)	Explain Gradient Descent algorithm.	
b)	Write a short note on Binomial Distribution.	[5+5]
	OR	
5.	How to estimate the difference in error of two hypothesis? Illustrate with example.	[10]
6.	Illustrate Naïve Bayes Classifier of Bayesian learning.	[10]
	OR	
7.a)	Explain Weighted-Majority algorithm.	
b)	Compare and contrast Lazy and Eager Learning.	[6+4]

8. Describe the prototypical genetic algorithm. [10]

OR

9.a) Describe the evaluation functions used to evaluate rule performance used in Learn-One-Rule algorithm.

b) Describe Q-Learning algorithm. [5+5]

10. Appraise the key properties, capabilities and limitations of explanation-based learning. [10]

OR

11.a) Explain explanation based learning for search control knowledge.

b) Compare and contrast analytical learning and inductive learning. [6+4]

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