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## B.TECH. (SEM V) THEORY EXAMINATION 2021-22 MACHINE LEARNING TECHNIQUES

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

## **SECTION A**

## 1. Attempt all questions in brief.

 $2 \times 10 = 20$ 

Qno.	Question	Marks	CO
a.	What is a "Well-posed Learning "problem? Explain with an example.	2	CO1
b.	What is Occam's razor in ML?	2	COI
c.	What is the role of Inductive Bias in ANN?	2	CO2
d.	What is gradient descent delta rule?	2	CO2
e.	What is Paired t Tests in Hypothesis evaluation?	2	CO3
f.	How do you find the confidence interval for a hypothesis test?	2	CO3
g.	What is sample complexity of a Learning Problem?	2	CO4
h.	Differentiate between Lazy and Eager Learning	2	CO4
i.	What is the problem of crowding in GA	2 .	CQ5
j.	Comparison of purely analytical and purely inductive learning.	2	€O5

SECTION B

2. Attempt any three of the following:

Qno.	Question	Marks	СО
a.	Design the Final design of checkers learning program.	10	COI
b.	What is Maximum Likelihood and Least Squared Error Hypothesis?	10	CO2
C.	What problem does the EM algorithm solve	10	CO3
d.	Highlight the importance of Case Based Learning	10	CO4
e.	Write short notes on Learning First Order Rules	10	CO5

SECTION C

3. Attempt any one part of the following:

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	Sky	Temp	Humidity	wind	water	Forecast	sport		
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	Given Tra	aining Ex	ample:				•		
	for the trainal algorithm.	_	mples given ir	the table	using the	candidate el	imination	755	
b.			general hypo						CO1
a.	Explain th	e "Conce	pt Learning"	Task Givin	g an exar	nple		.10	COI
Qno.				Question	gur aire i	ini, sur learn by		Marks	CO

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Sunny	warm	High	Strong	warm	same	Yes		
Rainy	cold	High	Strong	warm	change	No		
Sunny	warm	High	Strong	cool	change	Yes		

## Attempt any one part of the following: 4.

Qno.	Question	Marks	CO
a.	Comment on the Algorithmic convergence & Generalization property of ANN.	10	CO2
b.	Discuss the following issues in Decision Tree Learning:	10	CO2
	Overfitting the data		
	2. Guarding against bad attribute choices		
	3. Handling continuous valued attributes		
	4. Handling missing attribute values		
	5. Handling attributes with differing costs		
		:	

Attempt any one part of the following 5.

Qno.	Question	Marks	CO
a.	How is Naïve Bayesian Classifier different from Bayesian Classifier?	10	CO3
b.	Explain the role of Central Limit Theorem Approach for deriving	10	CO3
	Confidence Interval.		

Attempt any one part of the following: 6.

Qno.	Question	Marks	CO
a.	Write short notes on Probably Approximately Correct (PAC) learning model.	10	CO4
b.	Discuss various Mistake Bound Model of Learning	10 ·	CO4

Attempt any one part of the following: 7.

Qno.	Question	Marks	CO
a.	What is the significance of Leacur one Rule Algorithm?	10	CO5
b.	Describe a prototypical generic algorithm along with various operations possible in it.	10	CO5