

G. Narayanamma Institute of Technology & Science
(Autonomous) **(for Women)**
 Shaikpet, Hyderabad- 500 104

I-M.Tech I-Semester Regular Examinations, April-2022

MACHINE LEARNING
(Computer Science and Engineering)

Max. Marks: 70

Time: 03 Hours

(Answer any 05 full questions. Each question carries 14 marks)

Q.No	Question	Marks	Bloom's Level																																								
Q.1(a)	Analyse a well posed machine learning problem for the following. i) Handwritten character recognition problem ii) Autonomous moving vehicle	[07]	[L4]																																								
(b)	Discuss various issues in machine learning.	[07]	[L3]																																								
Q.2(a)	Explain Candidate Elimination Algorithm.	[07]	[L2]																																								
(b)	Apply Find-S algorithm for the following data set and find out the maximally specific hypothesis?	[07]	[L6]																																								
	<table><tr><th>Example</th><th>Sky</th><th>AirTemp</th><th>Humidity</th><th>Wind</th><th>Water</th><th>Forecast</th><th>EnjoySport</th></tr><tr><td>1</td><td>Sunny</td><td>Warm</td><td>Normal</td><td>Strong</td><td>Warm</td><td>Same</td><td>Yes</td></tr><tr><td>2</td><td>Sunny</td><td>Warm</td><td>High</td><td>Strong</td><td>Warm</td><td>Same</td><td>Yes</td></tr><tr><td>3</td><td>Rainy</td><td>Cold</td><td>High</td><td>Strong</td><td>Warm</td><td>Change</td><td>No</td></tr><tr><td>4</td><td>Sunny</td><td>Warm</td><td>High</td><td>Strong</td><td>Cool</td><td>Change</td><td>Yes</td></tr></table>	Example	Sky	AirTemp	Humidity	Wind	Water	Forecast	EnjoySport	1	Sunny	Warm	Normal	Strong	Warm	Same	Yes	2	Sunny	Warm	High	Strong	Warm	Same	Yes	3	Rainy	Cold	High	Strong	Warm	Change	No	4	Sunny	Warm	High	Strong	Cool	Change	Yes		
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Q.3	Elaborate on Decision Tree Learning by explaining ID3 algorithm with example.	[14]	[L5]																																								
Q.4(a)	What is Bayes theorem? How this is used in MAP and Maximum likelihood hypothesis?	[07]	[L2]																																								
(b)	Discuss in detail about Bayesian Belief Networks.	[07]	[L3]																																								
Q.5(a)	Elaborate on Probably Approximately Correct (PAC) Learning.	[07]	[L1]																																								
(b)	Discuss about Vapnik-Chervonenkis(VC) Dimension.	[07]	[L1]																																								
Q.6(a)	Write in detail about Locally Weighted Regression with an example.	[07]	[L4]																																								
(b)	Elaborate on Case Based Reasoning.	[07]	[L1]																																								
Q.7(a)	Discuss about sample error and true error.	[07]	[L2]																																								
(b)	Elaborate on following sampling theory concepts: i) Confidence Intervals ii) Bias iii) Variance	[07]	[L1]																																								
Q.8(a)	Elaborate on Q Learning.	[07]	[L2]																																								
(b)	Discuss about Inductive-Analytical approaches to Learning.	[07]	[L1]																																								

END OF THE QUESTION PAPER