

G. Narayanamma Institute of Technology & Science**(Autonomous)****(for Women)**

Shaikpet, Hyderabad- 500 104

III-B.Tech II-Semester Regular Examinations, August -2021.**MACHINE LEARNING****(Common to CSE & IT)****Max. Marks: 70****Time: 03 Hours***(Answer 05 full questions. Each question carries 14 marks)*

Q.No.	Question	Marks	Bloom's Level
Q.1(a)	Discuss concept learning task along with general to specific ordering of hypothesis.	[07]	[L2]
(b)	Explain about version spaces and candidate elimination algorithm with example.	[07]	[L2]
Q.2	To design a machine learning system what factors are to be considered, Discuss in detail.	[14]	[L3]
Q.3(a)	Discuss in detail about back propagation algorithm.	[08]	[L2]
(b)	Give the importance of Perceptron and its representational power.	[06]	[L5]
Q.4(a)	Explain the procedure to construct the Decision Tree	[06]	[L3]
(b)	Discuss the issues in Decision Tree learning.	[08]	[L2]
Q.5(a)	Write about Naive Bayes classifier.	[04]	[L2]
(b)	Using Naive Bayes classifier what will be the class when a new species holds following feature values:	[10]	[L5]

Give Birth	Can Fly	Live in Water	Have Legs	Class
yes	no	yes	no	?

For the following data set

Name	Give Birth	Can Fly	Live in Water	Have Legs	Class
human	yes	no	no	yes	mammals
python	no	no	no	no	non-mammals
salmon	no	no	yes	no	non-mammals
whale	yes	no	yes	no	mammals
frog	no	no	sometimes	yes	non-mammals
komodo	no	no	no	yes	non-mammals
bat	yes	yes	no	yes	mammals
pigeon	no	yes	no	yes	non-mammals
cat	yes	no	no	yes	mammals
leopard shark	yes	no	yes	no	non-mammals
turtle	no	no	sometimes	yes	non-mammals
penguin	no	no	sometimes	yes	non-mammals
porcupine	yes	no	no	yes	mammals
eel	no	no	yes	no	non-mammals
salamander	no	no	sometimes	yes	non-mammals
gila monster	no	no	no	yes	non-mammals
platypus	no	no	no	yes	mammals
owl	no	yes	no	yes	non-mammals
dolphin	yes	no	yes	no	mammals
eagle	no	yes	no	yes	non-mammals

- Q.6(a)** Explain bayes theorem and Maximum A Posteriori (MAP) rule. [07] [L1]
- (b)** Elaborate the methodologies used for measuring the sample complexities for Finite and Infinite Hypothesis space. [07] [L2]
- Q.7(a)** Discuss about Case Based Reasoning. [07] [L2]
- (b)** Apply KNN algorithm and predict the type of food for given instance (Ingredient = tomato, Sweetness=6, Crunchiness=4) [07] [L3]

Ingredient	Sweetness	Crunchiness	Food type
grape	8	5	fruit
green bean	3	7	vegetable
nuts	3	6	protein
orange	7	3	fruit

- Q.8 (a)** Explain genetic algorithm. [07] [L3]
- (b)** Illustrate Genetic Operations used in genetic algorithm. [07] [L2]

END OF THE QUESTION PAPER