School of Computing Science and Engineering
Bachelor of Technology in Computer Science and Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem V - E2UC508C - Machine Learning

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Apply Naïve Bayes classification method in the following dataset and find the class label for Person(flu, covid)   K3 (6)

Person	Covid	Flu	Fever
1	YES	NO	YES
2	NO	YES	YES
3	YES	YES	YES
4	NO	NO	NO
5	YES	NO	YES
6	NO	NO	YES

2) Consider the following set of training examples. a) What is the entropy of this collection of training example with respect to the target function classification? b) What is the information gain of a2 relative to these training examples?   K3 (9)

Instance	Classification	a1	a2
1	+	T	T
2	+	T	T
3	-	T	F
4	+	F	F
5	-	F	T
6	-	F	T

3) Classify different types of Bayesian classifiers by taking a suitable example   K4 (8)

4) Determine the ethical implications associated with the use of predictive models in decision-making processes. Analyze the potential risks and biases that require attention when deploying predictive models in real-world applications   K5 (15)

5) Create a linear regression model using the least squares approach to establish the equation y=ax+b. Calculate the values of the slope (a) and intercept (b) for the regression line. Utilize these values to estimate the value of y when x is equal to 10   K6 (12)