

Subject Code...CSE313.

Enrollment No....1023119220027

MID TERM EXAMINATION-September 2022

*Fundamentals of Machine Learning*

Time: 01Hr

Maximum marks: 30

Note: Attempt questions as per Instructions

**SECTION-A (Attempt any two questions out of three, Each of 05 Marks)**

- Q.1. Explain the various stages involved in designing a learning system. Illustrate with basic schematic diagram of Machine learning system.
- Q.2. Compare classification with regression with an example.
- Q.3. Following table gives the dataset:

x	y
0	2
1	3
2	5
3	4
4	6

Determine the y-intercept and slope of the regression equation. Also, determine the equation of regression line.

**SECTION-B (Attempt any One question, out of two, Each of 10 Marks)**

- Q.1. (a) Compare Feature Extraction and Feature Selection techniques.
- (b) Discuss on the linear regression and logistic regression techniques. Support your answers with the graphs and mathematical expressions.
- Q.2. A patient takes a lab test and the result comes back positive. The test returns a correct positive result in only 98% of the cases in which the disease is actually present, and a correct negative result in only 97% of the cases in which the disease is not present. Furthermore, .008 of the entire population have this disease. Identify the most likelihood probability with disease present or absent given the test report is positive.

**SECTION-C (Compulsory, 10 Marks)**

**Q.1.** The following table gives the dataset about stolen vehicles. Using naïve bayes classifier, classify the new data {Color= Red, Type= SUV, Origin= Domestic}

Color	Type	Origin	Stolen
Red	Sports	Domestic	Yes
Red	Sports	Domestic	No
Red	Sports	Domestic	Yes
Yellow	Sports	Domestic	No
Yellow	Sports	Imported	Yes
Yellow	SUV	Imported	No
Yellow	SUV	Imported	Yes
Yellow	SUV	Domestic	No
Red	SUV	Imported	No
Red	Sports	Imported	Yes