**Total No. of Questions : 4]**

**SEAT No. :** ____

**PA-10350**

**[Total No. of Pages : 2**

# [6009]-440
# T.E. (Computer Engineering) (Insem.)
# STATISTICS AND MACHINE LEARNING
## (2019 Pattern) (Semester - II) (310503)

***Time : 1 Hour]*** ***[Max. Marks : 30***

***Instructions to the candidates :***

1) ***Answer Q.1 or Q.2, Q.3 or Q.4.***
2) ***Neat diagram must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

***Q1)*** a) What is Mean by Regression? Explain the Bi-variant regression and Multi-Variant regression with example. Explain application of Bi-variant regression and Multi-variant regression. **[7]**

b) What is Mean by Central Tendency? Explain the Concept of **[8]**

i) Mean

ii) Median

iii) Mode

Consider the following dataset shows a simple frequency distribution of score of student :

| Score | Number of student |
|---|---|
| 60 | 3 |
| 65 | 2 |
| 70 | 5 |
| 75 | 7 |
| 80 | 3 |

Calculate the values for above dataset -

i) Mean

ii) Median

iii) Mode

iv) Mid-range

OR

***P.T.O.***

***Q2)*** a) Explain the Inferential Statistics? What are the types? Explain them with examples. Differentiate between Descriptive a Statistics & Inferential Statistics. **[7]**

b) Explain the concept of test in brief **[8]**

i) Chi-Square Test

ii) T-Test

iii) ANOVA Test

iv) ANCOVA Test

Explain each type with proper example and applications

***Q3)*** a) Explain the Bayes theorem with suitable example. Why Naives Bayes classifiers are useful in Bayes theorem. Explain the different types of Naïve Bayes classifier. **[7]**

b) What is the importance of Prior probability? Evidence, likelihood, Posterior probability in Baye's theorem? **[8]**

OR

***Q4)*** a) What do you mean by Probabilistic Models with hidden variable? What is the use of Probabilistic Models? Explain the different types of Probabilistic Models with examples. **[7]**

b) Calculate the lower quartile, upper quartile, quartile derivations, coefficient of quartile derivations for the given data set **[8]**

| CLASS | FREQUENCY |
|---|---|
| 30-40 | 99 |
| 40-50 | 65 |
| 50-60 | 79 |
| 60-70 | 75 |
| 70-80 | 87 |

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