

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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