Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA (Part time) – SEMESTER -II–EXAMINATION – WINTER 2021

Subject Code: 4529901 **Date:** 11-03-2022

Subject Name: Business Statistics

Time: 10:30 AM TO 01:30 PM **Total Marks:** 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 Define the Term: (All 7 Questions are Compulsory) **14 Marks**

(a) Degree of freedom
(b) Type I and Type II error
(c) random sampling
(d) Quartile range
(e) cluster sampling
(f) ANOVA
(g) Kurtosis

Q.2 (a) Write a short note on level of data management. **7 Marks**

(**b)** Find standard Deviation of the following figures: **7 Marks**

Height (Inches)	44-46	46-48	48-50	50-52	52-54	total
No. of Children	5	25	28	22	5	85

OR

b) Find the median and median class of the following data: **7 Marks**

Class-Interval	15-25	25-35	35-45	45-55	55-65	65-75
Frequency	5	10	15	20	25	30

Q.**3 (a)** Write a note on statistical graphs and charts? **7 Marks**

(b) Find out the inter quartile range and quartile deviation. **7 Marks**

X	1	2	3	4	5	6	7	8	9	10
Y	2	4	8	12	14	13	6	10	21	10

OR

(a) Explain the term giving salient features – Bayes' theorem **7 Marks**

(b) The bolts produced by a certain machine were checked by examining sample of 12. The following table shows the distribution of 130 samples according to the number of defective items they contained: **7 Marks**

Nos. of defectives in sample of 12	0	1	2	3	4	5	6	7	**Total**
Nos. of samples	7	6	19	35	30	23	8	2	**130**

Fit the binomial distribution and find the expected frequencies if the chance of a bolt being defective is ½. Find the mean and variance of the fitted distribution.

Q.4 (a) Explain the term Random variable associated with an experiment. Thereafter distinguish between discrete and continuous probability distributions also mentioning types of discrete and continuous distributions? **7 Marks**

(b) According to the HRD Statistics in India, 75% of the women of 18 to 25 years age group are student. Suppose 78% of the women in that age group are married. Suppose also that 61% of all women of 18 to 25 years age group are married and are student.
What is the probability that a randomly selected woman in that age group is married or is student? What is the probability that a randomly selected woman in the age group is married or is student but not both? What is the probability that a randomly selected woman in that age group is neither married nor student? **7 Marks**

OR

(a) Differentiate Type I and Type II error and Explain with examples **7 Marks**

(b) Data was collected over a period of 10 years, showing number of deaths from heart attack in each of the 200 army crops. The distribution of deaths was as follows: **7 Marks**

No. of Deaths	0	1	2	3	4	Total
Frequency	112	72	28	9	4	225

Q.5 151.8**,** 71.4**,**65.5**,**36.4**,**25.0**,**24.5**,**20.4**,**19.8**,**17.7**,**16.0**,**15.9**,**15.1**,**13.4**,**12.9**,**12.1 **14 marks**

Find the following:

1. Mean
2. Median
3. Mode
4. Quartile range
5. Quartile deviation
6. Standard deviation

OR

Is the type of beverage ordered with lunch at a restaurant independent of the age of the consumer? A random poll of 309 lunch customers is taken, resulting in the following contingency table of observed values. Use $\alpha = 0.01$ to determine whether the two variables are independent. **14 marks**

Preferred Beverage

	Coffee/Tea	**Soft Drink**	**Other (Milk, etc.)**	
21-34	26	95	18	139
35-55	41	40	20	101
≥ 55	24	13	32	69
	91	148	70	309

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