

GUJARAT TECHNOLOGICAL UNIVERSITY**MBA(PART-TIME) SEMESTER– II EXAMINATION – WINTER 2019****Subject Code: 4529901****Date: 30-12-2019****Subject Name: Business Statistics****Time: 2.30 PM to 5.30 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 Explain the meaning of following terms with its business application: (14)

- i. Pie Chart
- ii. Discrete Probability Distribution,
- iii. Alternative Hypothesis
- iv. X is Poisson variate such that $P(x=2) = P(x=3)$. Find variance of the distribution.
- v. Ordinal Scale
- vi. Level of significance
- vii. Skewness

Q-2(A) What are the different measures of central tendency and variability? Briefly explain real life applications of measures. (7)**Q-2(B) A private sector bank conduct a survey to assess the investment intention. 60% people responded that they will invest in mutual fund, while 30% people invest in Government Bonds and remaining 10% people directly invest in equity market. If researcher select 10 investors randomly. Find the probability that: (7)**

- i. At least 7 investor select mutual fund as a investment options.
- ii. At the most 3 people invest money in government bonds
- iii. Find expected numbers of investor directly invest money in equity market.

OR**Q-2(B) A placement company has conducted a written test to recruit people in a software company. Assume that the test marks are normally distributed with mean 70 and standard deviation is 20. Calculate The following probability: (7)**

- i. Student secure more than 90
- ii. If passing marks for the students is 40, what is the probability that selected students failed in the screening process.
- iii. Find the probability that students secure marks between 40 and 60.

Q-3(A) Write a note on followings: (7)

- i. BAYE'S Rule Revision of Probability with formula
- ii. Uniform Distribution

Q-3(B) Perform one way ANOVA from the following data and state difference amongst the three Group at 5% level of significance: (7)

Group – I	6	8	7	6	4	9
Group – II	5	6	4	5	4	5
Group – III	6	7	6	8	9	7

OR**Q-3(A) State the differences between: (7)**

- i. Type – I Error and Type – II Error

ii. One tailed test and Two tailed test

Q-3(B) Negative appeal is recognised as an effective method of persuasion in advertising. A study in (7) the journal of advertising reported the results of content analysis of guilt advertisements in 24 magazines. The number of ads with guilt appeals that appeared in selected magazine types follow:

Magazine Type	Numbers of ads with guilt appeal
News and Opinion	20
General Editorial	16
Family Oriented	30
Business Financial	24
Female Oriented	18
African - Asian	12

Using $\alpha=0.05$ test to see whether population of ads. With guilt appeal differs amongst the six types of magazines.

Q-4(A) What is regression? Explain the usefulness of Regression in current business scenario. (7)

Q-4(B) The quality control manager at a LED bulb factory need to determine, whether average (7) Life of LED bulbs is equal to 1875 hours with the population standard deviations is 250 hours. A random sample of 256 LED bulbs selected at random and it indicates a sample mean life 1840 hours. Test 5% level of significance is there any evidence that mean of life of LED bulbs is different from 1875 hours.

OR

Q-4(A) Write a detail note on Non – Parametric Test. (7)

Q-4(B) Find coefficient of variation (C.V) from given frequency distribution: (7)

X	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Fi	3	7	15	22	14	13	06

Q-5 Case Study: (14)

XYZ is one of renowned MBA College in Gujarat. Mr. Shah is Director of the Management Institute is directly concern with academic excellence, Industrial Interface, contemporary challenges of business and industries. He equally serious regarding student profile, therefore he directly involved in the screening process of prospective candidates. Mr. Shah gives importance to male-female ratio, subject and culture diversity. In last selection process 20 students are shortlisted by panel. These students are classified into two groups namely A and B, their scores (out of 100) are given below:

A	65	70	74	66	72	78	73	67	82	73
B	80	75	65	70	78	82	77	83	85	75

Mr. Shah wants to analyse the above marks obtained by the two groups of the students. Being analyst kindly give the answer of Mr. Shah with appropriate quantitative tools.

Mr. Shah believes that Group B average marks is significantly higher than Group A. Do you agree with Mr. Shah's belief?

1. Answer the following questions:

- Which test will you suggest to compare the two types of data? Formulate the hypothesis to test Mr. Shah's belief.
- Test the above formulated hypothesis at 5% level of significance. Also give your conclusion to Mr. Shah.

OR

2. Mr. Shah wants to understand the relationship of marks between two groups:

- Calculate and interpret the value of correlation coefficient.
- Also derive the value of probable error and find the limit of the population of correlation coefficient and interpret the value.