Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MAM - SEMESTER–II • EXAMINATION – WINTER • 2014

Subject Code: 4120503 **Date: 19-12-2014**

Subject Name: Business Statistics

Time: 10:30 am - 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 **(a)** Define the following terms: **07**

i. Arithmetic mean
ii. Median
iii. Mode

(b) Define the following terms: **07**

a. Class limits
b. Class intervals
c. Class frequency
d. Class mid-point or class mark
e. Relative Frequency
f. Pie Chart

Q.2 **(a)** For the following class frequency distribution, draw the cumulative frequency polygon (or ogive) of less than type: **07**

Class	Frequency
1-4	3
4-7	5
7-10	4
10-13	1
13-16	6
16-19	7
19-22	5
22-25	14
25-28	1
28-31	4

(b) A jar contains 7 red balls, 5 green balls, 4 blue balls, and 3 white balls. A sample of size 7 balls is selected at random without replacement. Find the probability that the sample contains 2 red balls, 2 green balls, 2 blue balls, and 1 white ball. **07**

OR

(b) Find the expected value of the number X shown on the face of a dice, when the dice is thrown. The dice is unbiased. (Note : Face value of a dice is 1, 2, 3, 4, 5 or 6) **07**

Q.3 **(a)** Mumbai Indians your favourite team is in the final playoffs. You have assigned a probability of 60% that they will win the championship. Past records indicate that when teams win the championship, they win the first game of the series 70% of the time. When they lose the series, they win the first game 25% of the time. The first game is over, your team has lost. What is the probability that they will win the series? **07**

(b) Discuss Bayes' theorem in detail. **07**

OR

Q.3 **(a)** Define the following terms: **07**

i. Range
ii. Standard Deviation
iii. Variance
iv. Mean Deviation

(b) Following are the numbers of daily bids received by the government of a developing country from firms interested in winning a contract for the construction of a new express highway 2,3,2,4,3,5,1,9,6,5,7,3,5,1,6 **07**

Find the range, lower quartile, upper quartile; inter quartile range, and median of these data.

Q.4 **(a)** The following data are scores on a CMAT examination taken by a group of 14 students. **07**

85,56,64,45,52,76,54,79,38,98,69,77,71,45

Find the median, and the 20th, 40th 60th and 90th percentile of these data

(b) Calculate the variance for the class-frequency distribution given below: **07**

Marks obtained	Number of students
0-10	15
10-20	20
20-30	25
30-40	17
40-50	12

OR

Q.4 **(a)** Compute the mean deviation for the following set of data. **07**

Marks	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	5	14	10	8	6	4

(b) Define sampling. Discuss Probability sampling Methods. **07**

Q.5 **(a)** Write a note on: Non Probability Sampling Methods. **07**

(b) At a small gasoline station, the amount of diesel sold daily at a service station is uniformly distributed with a minimum of 2000 liters and a maximum of 5000 litters. **07**

A. Find the probability that daily sales will fall between 2500 and 3000 liters.
B. What is the probability that the service station will sell at least 4000 liters?
C. What is the probability that the service station will sell less than 4000 liters?

OR

Q.5 **(a)** Write a note on: Exponential Distribution. **07**

(b) Suppose in Gujarat, the average monthly electricity bill is 427.8. if monthly electricity bills are normally distributed with a standard deviation of Rs 113.5 **07**

a. What is the probability that a randomly selected electricity bill is more than Rs 677.5?
b. What is the probability that a randomly selected electricity bill is between Rs 300 and Rs 500?
c. What is the probability that a randomly selected electricity bill is no more than Rs 250?

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