

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MBA (Integrated) – SEMESTER – 2 • EXAMINATION – SUMMER - 2018**

**Subject Code: 2527102****Date: 31/05/2018****Subject Name: Business Statistics****Time: 02:30 PM to 05:30 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)** Explain following terms: (with examples) **07**  
 1. Complementary event, Mutually exclusive events  
 2. Experiment, Event, Elementary events, Sample Space  
 3. Unions & Intersections
- (b)** Explain following terms: (with examples) **07**  
 1. Arithmetic mean, Median and Mode  
 2. Standard Deviation, Variance and Coefficient of Variation  
 3. Range, Inter – Quartile Range and Mean Absolute Deviation
- Q.2 (a)** What is meant by ‘correlation’? Distinguish between positive, negative and no correlation with examples. **07**
- (b)** Obtain the rank correlation coefficient between the variables x and y from the following pairs of observed values. **07**  
 X: 4      5      7      8      6      3      5  
 Y: 11     9      13     7      13     8      8
- OR**
- (b)** Explain the concept of regression and what conditions can there be in one regression line? Point out its importance in business forecasting. **07**
- Q.3 (a)** What do you understand by the terms skewness and kurtosis? Point out their role in analyzing a frequency distribution. **07**
- (b)** A data set contains the following eight values. **07**  
 4      3      0      5      2      9      4      5
- a. Find the range and interquartile range.
  - b. Find the sample variance and sample standard deviation.
  - c. Find the mean absolute deviation.
- OR**
- Q.3 (a)** Compute the mean, median, mode, variance, and standard deviation on the following sample data. **07**
- | Class Interval | Frequency |
|----------------|-----------|
| 10 – 15        | 6         |
| 15 – 20        | 22        |
| 20 – 25        | 35        |
| 25 – 30        | 29        |
| 30 – 35        | 16        |
| 35 – 40        | 8         |
| 40 – 45        | 4         |
| 45 – 50        | 2         |
- (b)** What do you mean by Quartiles, Deciles and Percentiles? Explain uses of it with examples. **07**
- Q.4 (a)** What is statistics? How do you think that the knowledge of statistics is essential in management decisions? Give examples. **07**

- (b) Construct a pie chart and a bar graph from the following data. **07**
- |           |   |    |    |   |    |
|-----------|---|----|----|---|----|
| Category  | A | B  | C  | D | E  |
| Frequency | 7 | 12 | 14 | 5 | 19 |

**OR**

- Q.4 (a)** Construct a histogram, a frequency polygon (in one graph) & an ogive (more than only) for the following frequency distribution. **07**

Class Interval	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
Frequency	13	27	43	31	9

- (b) What are the different types of charts known to you? What are their uses? **07**

- Q.5 (a)** Explain and Differentiate Permutation and Combination with example. **07**

- (b) A bin contains six parts. Two of the parts are defective and four are acceptable. If three of the six parts are selected from the bin, how large is the sample space? Which counting rule did you use, and why? For this sample space, what is the probability that exactly one of the three sampled parts is defective? **07**

**OR**

- Q.5 (a)** Salman, Arbaaz, and Sohail fill orders in a fast-food restaurant. Salman incorrectly fills 20% of the orders he takes. Arbaaz incorrectly fills 12% of the orders he takes. Sohail incorrectly fills 5% of the orders he takes. Salman fills 30% of all orders, Arbaaz fills 45% of all orders, and Sohail fills 25% of all orders. An order has just been filled. **07**

A) Who filled the order is unknown, but the order was filled incorrectly. What are the revised probabilities that Salman, Arbaaz, or Sohail filled the order?

B) Who filled the order is unknown, but the order was filled correctly. What are the revised probabilities that Salman, Arbaaz, or Sohail filled the order?

- (b) Explain what you understand by the term probability. Discuss its importance in business decision-making. **07**

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