

Reg. No. 

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MBA Degree (FT/PT) I Semester End Semester Examination – February/March 2022

## 21-371-0102/21-372-0102: Statistics for Managers

(Regular and Supplementary)

Time 3 Hours

Max. Marks 50

## PART A

*(Answer ALL Questions. Each question carries 2 marks)*

1. Define Co-efficient of Variation
2. What is meant by Non parametric tests
3. What is the probability of getting at least one head when you toss two coins.
4. Write properties of correlation coefficient
5. State Bayes Theorem.

(5\*2=10)

## PART B

*(Answer any FIVE Questions. Each question carries 4 marks)*

6. The weekly sales of two products A and B are shown below. Which product shows more consistency in sales?

A     59     75     27     63     27     28     56

B     150    200    125    310    330    250    225

7. Students X and Y are asked to solve a problem independently. The probability that X will solve the problem is 0.4. The probability that Y will solve it is 0.5.

- a) What is the probability that the problem gets solved
- b) What is the probability that the problem is not solved

8. Briefly explain the significance of hypothesis testing in business research.

9. Consider the following time series data:

| Year          | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------|------|------|------|------|------|------|------|
| Sales (lakhs) | 25   | 28   | 30   | 32   | 32   | 30   | 34   |

What is the expected amount of sales for the year 2022?

10. The table below gives the sales and advertisement data for product for the last five months. Compute the Pearson correlation coefficient and explain its meaning

Advertisement:     10     12     15     22     25     30

Sales:                47     53     58     86     62     68

11. Write a note on various types of t-tests used in data analysis

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12. Two hundred randomly selected people were asked about their preferred colour among white, black and red for a car. The respondents were categorised by gender. The data is shown below. Is there any evidence to conclude that there is a relationship between gender and preference for a colour?

| Colour of the car | Gender |        |
|-------------------|--------|--------|
|                   | Male   | Female |
| White             | 28     | 52     |
| Black             | 12     | 28     |
| Red               | 50     | 30     |

(5\*4 = 20)

### PART C

(Answer any TWO Questions. Each question carries 10 marks)

13. (a) Write a note on applications of index numbers in business (3 marks)
- (b) Calculate Laspeyre Price Index and Paasche Price Index for the following data with year 2000 as base year (7 marks)

| Commodity | Price (Rs/ Unit) |      | Quantity ( MT) |      |
|-----------|------------------|------|----------------|------|
|           | 2000             | 2020 | 2000           | 2020 |
| A         | 20               | 40   | 8              | 6    |
| B         | 50               | 60   | 10             | 5    |
| C         | 40               | 50   | 15             | 15   |
| D         | 20               | 20   | 20             | 25   |

14. The following table gives the annual maintenance cost ( AMC) of a certain make of a car with respect to age of the car

|                |    |    |    |    |
|----------------|----|----|----|----|
| Age (Yrs)      | 2  | 4  | 6  | 8  |
| AMC ( Rs '000) | 10 | 20 | 25 | 30 |

- a) Develop a regression equation linking AMC to Age. (4 marks)
- b) What is the estimated maintenance cost for a 5 year old car? (2 marks)
- c) What is the explanatory power of this regression equation (Hint: Coefficient of determination) (4 marks)
15. Differentiate between
- a. Binomial Distribution and Poisson Distribution (5 marks)
- b. Skewness and Kurtosis. (5 marks)

(2\*10 = 20)

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