2023/06

MASTER OF COMMERCE
SECOND SEMESTER
BUSINESS STATISTICS
MCM – 205

SET A

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1.30 hrs.

Full Marks: 35

Objective

Time: 15 mins.

Marks: 10

Choose the correct answer from the following:

$1 \times 10 = 10$

1. A variable is a _____.
   a. Measurable characteristic
   b. Non-measurable characteristic
   c. Primary data
   d. Population characteristic

2. Which of the following is not a method of collecting primary data?
   a. Direct personal investigation
   b. Survey through questionnaire
   c. Audited financial statements of companies
   d. Indirect oral investigation

3. _____ is the process of drawing a sample in such a way that each and every unit of the population has equal chance of being selected in the sample.
   a. Stratified random sampling
   b. Simple random sampling
   c. Census survey
   d. Systematic sampling

4. The components of time series do not include:
   a. Secular trend
   b. Exponential trend
   c. Seasonal fluctuations
   d. Cyclical variations

5. Indicate which of the following is an example of irregular variation?
   a. Recession and depression in a business
   b. Fire in a factory
   c. Sale of air conditioners during summers
   d. Increase in sales during festivals

6. Which of these is true?
   a. $r_{xy} = r_{yx}$
   b. $-1 < r_{xy} < 1$
   c. Only b
   d. Both a & b

7. The regression equation of y on x can be expressed as:
   a. $y = a + bx$
   b. $x = a + by$
   c. $r_{xy} = y + bx$
   d. All of the above

8. When two variables are independent then the correlation can be expressed as:
   a. $r_{xy} = 1$
   b. $r_{xy} = -1$
   c. $r_{xy} = 0$
   d. None of the above

Which of the following is a non-parametric test?
a. Chi-square test
b. F-test
c. T-test
d. Z-test

Null hypothesis is represented as:
a. H_1
b. H_0
c. H_U
d. $H_?$

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(Descriptive)

[Answer question no.1 & any two (2) from the rest]

1. Write short notes on *any one* of the following: 5
   a) Qualities of a good questionnaire
   b) Time series analysis

2. What is meant by sample survey? State the advantages of sample survey 10
   in collecting data. Discuss in which situations it is suitable to use a
   census survey instead of sample survey?

3. For the following data, fit a linear trend using least squares method and 10
   calculate the estimated trend values for each year. Also estimate the
   sales for the year 2019:

Year	2011	2012	2013	2014	2015	2016	2017
Sales (in Rs. Lakhs)	40	45	46	42	47	49	46

4. a) What is meant by correlation between two variables? Interpret the 5+5=10
      following values of the correlation coefficient:
      $r = -1$, $r = 1$, and $r = 0$
   b) Two critics, critic X and critic Y, were asked to rank 7 different
      movies. the ranks given by them are as follows:

Movies	A	B	C	D	E	F	G
X	2	1	4	3	5	7	6
Y	1	3	2	4	5	6	7

5. a) Explain the meaning and characteristics of hypothesis. 5+5=10
   b) A wholesaler in apples claims that only 4% of the apples supplied
      by him are defective. A random sample of 600 apples contained 36
      defective apples. Test the claim of the wholesaler.

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1) Equity Share Capital: 5,000 Equity Shares of Rs. 20 each fully paid.
2) Preference Share Capital: 1,000, 8% Preference Shares of Rs.100 each fully paid.
3) General Reserve: Rs. 30,000.
4) Loss on Revaluation of Plant & Machinery: Rs. 12,000.
5) Average Trading Profit after Tax: Rs. 30,000.
6) Normal Rate of Return on Capital Employed: 12%.

8. a) Discuss the Asset Backing Method for valuing shares.   5+5=10
    b) Write a note on methods of valuation of business.

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