

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2023
Programme Name: MBA (ITL/PSM)
Semester: II
Subject Code: PG22T2201/ PG21T2201
Subject Name: QUANTITATIVE TECHNIQUES FOR BUSINESS

Date: 17.11.2023

Max Marks: 60

Duration: 03 Hrs

Pass Marks: 30

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

1. What is the primary purpose of descriptive statistics?
 - a. To make predictions about future data
 - b. To summarize and present data
 - c. To determine causation between variables
 - d. To conduct hypothesis tests
2. Which of the following is a measure of variability?
 - a. Mean
 - b. Median
 - c. Standard deviation
 - d. Mode
3. What is the significance of the study of correlation?
 - a. It helps establish causation between variables.
 - b. It aids in predicting future values of a variable.
 - c. It measures the degree and direction of association between two variables.
 - d. It determines the standard error of estimate.
4. In time series analysis, what are the components of a time series?
 - a. Trend, seasonality, and noise
 - b. Mean, median, and mode
 - c. Correlation, regression, and variance
 - d. Skewness, kurtosis, and standard deviation

5. What is convenience sampling?
 - a. Randomly selecting samples from the entire population
 - b. Selecting samples based on predetermined strata
 - c. Selecting samples based on ease of access or availability
 - d. Dividing the population into clusters

6. Which of the following is appropriate for test of goodness of fit?
 - a. t-test
 - b. p-value
 - c. z-test
 - d. chi square test

7. The critical path is the _____ time the network can be completed.
 - a. maximum
 - b. minimum
 - c. longest
 - d. shortest

8. In simplex method, artificial variables are used when
 - a. The constraints are of (\leq) type
 - b. The constraints are of (\geq) type
 - c. The constraints are of ($=$) type
 - d. The constraints are of ($=$) and/or (\geq) type

9. PERT analysis is based on
 - a. optimistic time
 - b. pessimistic time
 - c. most likely time
 - d. all the above

10. In ____ models, everything is defined and the results are certain.
 - a. Deterministic Models
 - b. Probabilistic Models
 - c. Both a and b
 - d. None of the above

Section B

Five Questions of 02 Marks each

11. What is cluster sampling?
12. Write a short note on 'Poisson probability distribution'.
13. What do you understand by Standard Error of Estimate?
14. State the utility of operation research.

15. What is queuing theory? What are the components of a queuing system?
(1+1)

Section C

Seven Questions of 08 Marks each of which any 05 questions to be answered.

16. What are the different types of tabular and graphical presentations used in descriptive statistics? (8)

17. What are the different types of data sources? Explain the advantages and disadvantages of each type of data source. (4+4=8)

18. (A) From following information find the correlation coefficient between advertisement expenses and sales volume using Karl Pearson's coefficient of correlation method.

Firm	1	2	3	4	5	6	7	8	9	10
Advertisement expenses (Rs. In Lakhs)	11	13	14	16	16	15	15	14	13	13
Sales volume (Rs. In Lakhs)	50	50	55	60	65	65	65	60	60	50

(B) Find the regression equation of Y on X from the following data:

X	10	12	16	11	15	14	20	22
Y	15	18	23	14	20	17	25	28

(4+4=8)

19. What are the different methods of sampling? Elaborate with suitable examples.

20. What is simulation? What are the Advantages and limitations of simulation?

21. Solve the following problem using simplex method

$$\text{Maximise } Z = 7x_1 + 14x_2$$

Subject to the constraints

$$3x_1 + 2x_2 \leq 36$$

$$x_1 + 4x_2 \leq 10$$

$$x_1, x_2 \geq 0$$

22. Define the concept of Free Float and Independent Float in network analysis. Briefly discuss on System length in a queuing system. (4+4=8)
