25900301

Reg.No : .....

Name : .....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS) Regular EXAMINATION October 2025

Third SEMESTER

Discipline Specific Core Course (DSC) - MG3DSCCOM201 - QUANTITATIVE TECHNIQUES FOR BUSINESS

(2024 ADMISSION ONWARDS)

Duration: 2 Hours **Maximum Marks: 70**

Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

Part A

Very Short Answer Questions

Answer any **12** questions

Each question carries **1** marks

1. What is Descriptive Statistics? [U] / [CO1]
2. Which measures of dispersion are used to compare the distribution of two or more data sets? [U] / [CO2]
3. Which mean is suitable for finding the average speed of a car traveling equal distances at different speeds? [U] / [CO1]
4. State the most common use of Lorenz Curve. [A] / [CO2]
5. Karl Pearsons coefficient of skewness is 0.32.Its SD is 6.5 and mean is 29.6. Find mode. [A] / [CO3]
6. Find Mean , median = 20 and mode = 10 . [A] / [CO1]
7. Consider the data: 2,4,6,8 . The Mean Deviation about Mean is [A] / [CO2]
8. For a matrix to be invertible, what must be non-zero? [U] / [CO4]
9. Primary data is collected by researcher himself so it is ---- in nature. [U] / [CO5]
10. What is the term for a distribution with kurtosis less than 3? [U] / [CO3]

11. A series having less coefficient of variation is considered to be more ..... [A] / [CO2]

12. A 1x4 matrix has how many rows? [A] / [CO4]

13. In matrices, If A=[1 -11], B=[7 -6], find A-B. [A] / [CO4]

14. In a table, what is meant by 'body'? [U] / [CO5]

[1x12 = 12]

Part B

Short Answer/ Problem Type Questions

Answer any **4** questions

Each question carries **7** marks

15. 'Statistical averages must be used with caution'. Comment. [U] / [CO1]

16. Calculate Mean Deviation from Mean. Also calculate Coefficient of Mean Deviation. [A] / [CO2]

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
No.of Students	10	25	30	20	15

17. Find the Pearsonian Coefficient of Skewness from the following data and comment [A] / [CO3]

Marks: 35 36 37 38 39 40 42 45

18. ABC Trading Company has two product lines: Product A and Product B. The company operates in two markets: Urban and Rural. The profit margins (in percentage) and market share data are organized as follows: The profit margin matrix P is given by: Urban market: Product A has 15% profit margin, Product B has 20% profit margin Rural market: Product A has 12% profit margin, Product B has 18% profit margin. Set up the profit margin matrix P as a 2×2 matrix where rows represent markets (Urban, Rural) and columns represent products (A, B). Also find the adjoint of matrix P. [A] / [CO4]

19. Explain the limitations of the Questionnaire Method. [U] / [CO5]

20. The below table shows the number of skilled and unskilled workers in two small communities, together with their average hourly wages: [A] / [CO1]

Worker category	Ram Nagar		Shyam Nagar	
	Number	Wage per hour (₹)	Number	Wage per hour (₹)
Skilled	150	180	350	175
Unskilled	850	130	650	125

Determine the average hourly wage for each community.

[7x4 = 28]

Part C

Essay/ Problem Type Questions

Answer any 2 questions

Each question carries **15** marks

21. Determine the value of median from the following table: [A] / [CO1]

No. of days absent (Less than)	5	10	15	20	25	30	35	40	45
No. of students	29	224	465	582	634	644	650	653	655

22. Find Bowley's Coefficient of Skewness and comment [A] / [CO3]

Class	Frequency
0-10	12
10-20	15
20-30	17
30-40	25
40-50	8
50-60	5
60-70	2

23. ABC Manufacturing Company produces 3 products (Product X, Product Y, Product Z) across 4 different shifts. The company needs to calculate total daily production costs for each shift. Daily Production Matrix P [A] / [CO4]

(units produced per shift): $P = \begin{bmatrix} 120 & 150 & 180 \\ 100 & 140 & 160 \\ 110 & 130 & 170 \\ 90 & 120 & 150 \end{bmatrix}$ Columns represent:

Product X, Product Y, Product Z Unit

Cost Matrix C (production cost per unit in rupees): $C = \begin{bmatrix} 250 \\ 180 \\ 320 \end{bmatrix}$

Prepare the daily production cost matrix to answer the following. a) Which shift has the highest total production cost? b) Which shift has the lowest total production cost?

[15x2 = 30]