**TEMPLATE 4**

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| **University of Kerala** | | |
| Discipline: Statistics |  | Time: 2 Hours (120 Mins.) |
| Course Code: UK1DSCSTA102 |  | Total Marks: 56 |
| Course Title: QUANTITATIVE DATA ANALYTICS-I |  |  |
| Type of Course: DSC |  |  |
| Semester: 1 |  |  |
| Academic Level: 100-199 |  |  |
| Total Credit: 4, Theory: 4 Credit, Practical: 0 Credit |  |  |

**Part A.** 6 Marks. Time: 5 Minutes  
Objective Type. 1 Mark Each. Answer All Questions

(Cognitive Level: Remember/Understand)

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| **Qn. No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 1. | Name the autonomous Institute which comes under the Ministry of Statistics and Programme Implementationand is declared as an institute of National importance by an Act of Parliament | Remember | CO 1 |
| 2. | Name the scale of measurement which is considered to be ideal. | Remember | CO 2 |
| 3. | Give two examples of non-probability sampling | Understand | CO 3 |
| 4. | An arrangement of data in rows and columns is known as \_\_\_\_\_\_ . | Understand | CO 4 |
| 5. | In a \_\_\_\_\_\_\_ skewed distribution, mean < median < mode. | Understand | CO 5 |
| 6. | What percentage of observations lie above 8th decile ? | Understand | CO 5 |

Part B. 10 Marks. Time: 20 Minutes  
Two-Three sentences. 2 Marks Each. Answer All Questions

(Cognitive Level: Understand/Apply)

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| **Qn. No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 7. | How is Statistics defined in the plural sense? Give an example for Statistics in the plural sense. | Understand | CO 1 |
| 8. | Explain the difference between primary data and secondary data. | Understand | CO 2 |
| 9. | Explain the Direct Personal Interview method of collecting primary data | Apply | CO 3 |
| 10. | Given the number of cars owned by 20 families in a neighbourhood: 1, 2, 3, 1, 2, 0, 3, 2, 1, 1, 2, 3, 2, 2, 1, 0, 1, 3, 2, 1, apply your knowledge of discrete frequency distribution to create a frequency table for the number of cars per family | Apply | CO 4 |
| 11. | Based on the following scores, what is the percentage of scores less than 76?  90, 97, 82, 95, 75, 76, 74, 83, 87 | Apply | CO 5 |

Part C. 16 Marks. Time: 35 Minutes  
Short Answer. 4 Marks Each. Answer all 4 questions, choosing among options within each question.

(Cognitive Level: Apply/Analyse)

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| Qn. No. | Question | Cognitive Level | Course Outcome (CO) |
| 12. | 1. Categorize the following variables as nominal, ordinal, interval or ratio scales: 2. Number of pets owned 3. Satisfaction level 4. Eye color 5. Level of agreement   OR   1. You are tasked with assessing patient satisfaction across a nationwide hospital system. Why might sampling be preferred over census? | Apply | CO 2 |
| 13. | 1. The following data shows the quarterly sales data for a company. Use a suitable bar diagram to represent the sales for each quarter.   Quarter : 1 2 3 4  Sales (in $1000s) : 50 70 65 80   |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  |   OR   1. Explain pie diagram. | Apply | CO 4 |
| 14. | 1. A car travels 60 km at a speed of 30 km/h and another 60 km at a speed of 60 km/h. Analyze this situation to find the car’s average speed for the entire journey.   OR   1. Given the monthly expenditures of 8 households, analyze the following data to determine the 15th and 85th percentiles.  |  | | --- | | 600, 800, 700, 1200, 1500, 900, 1000, 1300 | | Analyse | CO 5 |
| 15. | 1. Using the provided data on income and the corresponding number of persons, construct a Lorenz curve to analyze the distribution of income among the population.  Income (in ‘00) : 150 300 450 600 900 Number of Persons : 90 75 60 40 25   OR   1. Given below the arithmetic mean (AM), the mode and the standard deviation (SD) of two distributions. Identify which distribution is more skewed. Set I**:** AM = 24, Mode = 20, SD = 10   Set II: AM = 25, Mode = 23, SD = 12 | Analyse | CO 5 |

Part D. 24 Marks. Time: 60 Minutes  
Long Answer. 6 Marks Each. Answer all 4 questions, choosing among options within each question. (Cognitive Level: Analyse/Evaluate/Create)

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| **Qn. No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 16. | 1. Briefly explain the method of cluster sampling with an example.   OR  B) Explain the Indirect Oral Interview method of collecting primary data along with its merits and demerits. | Apply | CO 3 |
| 17. | 1. Explain the steps in constructing a less than ogive and a greater than ogive from a given frequency distribution table.   OR   1. Apply your understanding of graphical representation by constructing a histogram for the distribution of monthly income of 100 families in a city. Give your inference .  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Income(in thousands) | 0-25 | 25-50 | 50-75 | 75-100 | 100-125 | | No. of families | 15 | 40 | 28 | 12 | 5 | | Apply | CO 4 |
| 18. | 1. The following data gives the distribution of size of farms selected at random. Analyze the distribution to first construct a less than ogive. Using this ogive, determine the median, 4th decile and 90th percentile.   Farm in acres: 10-20 20-30 30-40 40-50 50-60 60-70 70-80  No: of farms: 8 14 18 22 13 9 6  OR   1. Compare the partition values namely Quartiles, Deciles and Percentiles. | Analyse | CO 5 |
| 19. | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 1. A company evaluated its employee performance based on three criteria: Attendance, Teamwork, and Productivity.  |  | **Attendance** | **Teamwork** | **Productivity** | | --- | --- | --- | --- | | **Employee 1** | 80 | 85 | 90 | | **Employee 2** | 75 | 78 | 88 |   If the respective weights for Attendance, Teamwork, and Productivity are 2, 3, and 5 respectively, compare their overall performance.  OR |  | |  |  | |  |  | |  |  |  1. Given below is the distribution of daily study hours of students. Analyze the frequency distribution and calculate Bowley’s coefficient of skewness. What does the value indicate about the shape of the distribution?  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Study hours | 0-2 | 2-4 | 4-6 | 6-8 | | No: of students | 2 | 5 | 7 | 4 | | Analyse | CO 5 |

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| **Cognitive Level** | **Marks** | **Percentage** |
| Remember | 2 | 3.6 |
| Understand | 8 | 14.3 |
| Apply | 14 | 25.0 |
| Analyse | 14 | 25.0 |
| Evaluate | 12 | 21.4 |
| Create | 6 | 10.7 |
| **TOTAL** | **56** | **100** |

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| **Course Outcomes** | **Marks** | **Percentage** |
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| **TOTAL** | **56** | **100** |