 University of Kerala  
 UoK -FYUGP

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| **University of Kerala** | | |
| Discipline: Statistics |  | Time: 1 Hour 30 Minutes (90 Mins.) |
| Course Code: UK1DSCSTA109 |  | Total Marks: 42 |
| Course Title: Descriptive Statistics And Probability |  |  |
| Type of Course: DSC |  |  |
| Semester: 1 |  |  |
| Academic Level: 100-199 |  |  |
| Total Credit: 4, Theory: 3 Credit |  |  |

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

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| **Qn. No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 1. | ……………measures the symmetry of data sets | Remember | CO 1 |
| 2. | Probability of an event occurring, given that another event has already occurred is called …………………. | Remember | CO 7 |
| 3. | The second central moment of a random variable is equal to---- | Understand | CO 3 |
| 4. | The set of all possible outcomes of a random experiment is called …………… | Remember | CO 5 |
| 5. | Write down the empirical relation between arithmetic mean, median and mode | Remember | CO 5 |
| 6. | Say ’True’ or ‘False’: The value of probability Mass functions can be negative | Understand | CO 9 |

Part B. 8 Marks. Time: 24 Minutes  
Short Answer. 2 Marks Each. Answer All Questions

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| **Qn. No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 7. | Write the different scales of measurement with example? | Understand | CO 2 |
| 8. | The mean and median of a frequency distribution are 23.2 and 25.5 respectively. Calculate Karl Pearson measure of skewness if Standard deviation is 4.5 | Apply | CO 3 |
| 9. | Define Axiomatic approach to probability | Understand | CO 6 |
| 10. | State Bayes theorem. What is its significance? | Understand | CO 8 |

Part C. 28 Marks. Time: 60 Minutes  
Long Answer. 7 marks each. Answer all 4 Questions, choosing among options within each question.

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| **Qn. No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 11. | 1. Calculate S.D of the data:   Variate : 6 12 18 24 30 36 42 48  Frequency: 3 9 11 21 29 18 13 4 | Apply | CO 3 |
| B. Calculate coefficient of variation for the following data  Class : 0-10 10-20 20-30 30-40 40-50  Frequency: 8 15 24 21 12 | Apply | CO 3 |
| 12. | 1. What is skewness? Obtain any measure of skewness for the following data  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | x | 5 | 10 | 15 | 20 | 25 | 30 | 35 | | f | 4 | 38 | 65 | 90 | 70 | 42 | 6 | | Evaluate | CO 3 |
| 1. From the following data calculate the moment measure of skewness.  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Class | 0-10 | 10-20 | 20-30 | 30-40 | | Frequency | 1 | 3 | 4 | 2 | | Evaluate | CO 3 |
| 13. | A.  i) A four digit number is formed of the integer 0,1,2 and 3.Find the probability that number is divible by 5.  ii) Given P(A)=P(B)=P(C)=0.4,P(A)=P(B and P(.Find the probabilities of   1. At least one of the events 2. None of the events happen | Evaluate | CO 5 |
| B. Probabilities that a husband and wife will be alive 20 years from now is given by 0.8 and 0.9 respectively.Find the probability that in 20 years   1. both ii) neither iii) At least one will be alive | Evaluate | CO 5 |
| 14. | A. Let X be a discrete random variable with pdf , x =0,1,2,,…, θ > 0, then find the mgf of X and hence obtain the mean? | Evaluate | CO 10 |
| 1. If a random variable X has the density function . Obtain (i)P(X<1), (ii) P(|X|>1), (iii) P(2X+3>5). | Evaluate | CO 10 |

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| **Cognitive Level** | **Marks** | **Percentage** |
| Remember | 3 | 7.1 |
| Understand | 9 | 21.4 |
| Apply | 9 | 21.4 |
| Analyse | 7 | 16.7 |
| Evaluate | 14 | 33.3 |
| Create |  | 0 |
| **TOTAL** | **42** | **100** |

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| **Course Outcomes** | **Marks** | **Percentage** |
| 1 | 1 | 2.4 |
| 2 | 2 | 4.8 |
| 3 | 17 | 40.5 |
| 4 | 1 | 2.4 |
| 5 | 8 | 19.0 |
| 6 | 2 | 4.8 |
| 7 | 1 | 2.4 |
| 8 | 2 | 4.8 |
| 9 | 1 | 2.4 |
| 10 | 7 | 16.7 |
| **TOTAL** | 42 | **100** |