

QP CODE: 24900247



Reg No:.....

Name:.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

**FIRST SEMESTER MGU-UGP (HONOURS) REGULAR
EXAMINATION NOVEMBER 2024**

First Semester

Discipline Specific Core Course - MG1DSCSTA100 –

FUNDAMENTALS OF STATISTICS AND DATA VISUALISATION

(2024 ADMISSION ONWARDS)

Duration: 1.5 Hours

Maximum Marks: 50

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

*Students should attempt atleast one question from each course outcome to enhance their overall
outcome attainability.*

[Learning Domain][CO No(s)]

Part A

Short Answer Questions

Answer any seven questions. each question carries two marks.

- | | | |
|---|---|------------|
| 1 | Define a Histogram. | [K] [1] |
| 2 | Distinguish between absolute and relative measures of dispersion. | [An] [2] |
| 3 | Give an example where stratified random sampling can be used. | [C] [2] |
| 4 | Distinguish between discrete and continuous variables. | [K] [1] |
| 5 | If the probability of A is 0.5 and the probability of B is 0.6, and A and B are independent, what is the probability of both A and B happening? | [A] [5, 6] |
| 6 | If A and B are two events such that $P(A)=1/3, P(B)=1/4$ and $P(A \cap B)=1/8$. Find $P(A B)$. | [S] [5, 6] |
| 7 | Define positive skewness. Give the relation between mean, median and | [U] [1] |

mode when the distribution is positively skewed.

- 8 Distinguish between correlation and regression. [An] [3, 4]
- 9 If the two regression coefficients are 0.9 and 0.4, then find the correlation coefficient. [E] [7]
- 10 Obtain X on Y regression line if $\Sigma X=35$, $\Sigma X^2= 203$, $\Sigma Y=28$, $\Sigma Y^2= 140$, $\Sigma XY = 168$, and $n = 10$ [E] [7]
(7 × 2 = 14)

Part B

Short Essay Questions

Answer any four questions. each question carries 6 marks

- 11 Calculate the moment measure of skewness from the following data: 12, 14, 8, 6, 20, 17. [An] [7]
- 12 Given the two lines of regression as $3x - 4y + 8 = 0$, $4x - 3y = 1$. Identify them. [An] [3, 4]
- 13 Let A and B be two events associated with an experiment and suppose $P(A)=0.5$ while $P(A \text{ or } B)=0.8$. Let $P(B)=p$. For what values of p are i) A and B mutually exclusive ii) A and B are independent. [An] [5, 6]
- 14 The following data represents the weights of eight new born babies (in kg) 2.67, 3.02, 3.30, 2.63, 2.89, 3.15, 4.00 and 3.15. Compute the first, second and third quartiles. [A] [2, 7]
- 15 Find the mean deviation from median of the following data of salaries of 9 officers in a company Rs.1500, Rs.1250, Rs.2000, Rs.1850, Rs.1000, Rs.1750, Rs.1300, Rs.1000 and Rs.2000. [C] [2, 7]
- 16 If the regression equation of Y on X is $2x-5y=2$ and X on Y is $5x-4y=-20$, then find r. [An] [3, 4]
(4 × 6 = 24)

Part C

Essay Questions

Answer any one question. each question carries 12 marks

- 17 Distinguish between probability and non-probability sampling techniques. Give some real life examples where these methods are applied. [U] [2]
- 18 Derive both the regression equations, and then estimate X when Y=20, Y when X=20 based on the following data on ages(X) and weights (Y) of children. [U] [3, 4]

X	3	5	6	7	10	11
Y	8	12	11	14	16	17

(1 × 12 = 12)

END OF THE QUESTION PAPER
