MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

FIRST SEMESTER EXAMINATION

(2024 ADMISSION ONWARDS)

MG1MDCSTA100 – Statistical Data Collection

Duration: 1Hour Maximum Marks: 35

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

Part A

Multiple Choice Questions

*Answer **All** Questions.*

*Each question carries **2** marks*

1. What is the primary goal of an experimental study?
   a) To establish causal relationships between variables b) To gather opinions and demographic information c) To explore naturally occurring events
   d) To provide open-ended insights into human behaviour. [Remember] [CO1]
2. Which of the following features is characteristic of quantitative research?
   a) Objective measurement b) Statistical analysis
   c) Structured methods d) All of the above. [Apply] [CO5]
3. At what stage of the research process is the hypothesis typically formulated?
   a) Data collection b) Data analysis
   c) Literature review d) Research design [Understand] [CO1]
4. Lottery method is an example of
   a) Non probability sampling b) Cluster sampling
   c) Simple Random Sampling d) None of these. [Remember] [CO2]
5. Daily rainfall is an example of what sort of data:
   a) Discrete b) Continuous c) Both discrete and continuous
   d) Neither discrete nor continuous. [Understand] [CO1]
6. Which scale is the simplest form of measurement?
   a) Nominal b) Ordinal c) Interval d) Ratio. [Understand] [CO3]
7. In the context of experimental design, what does randomization help to eliminate?
   a) Systematic error b) Data variability c) Human error
   d) Natural variation [Analyse] [CO7]
8. What type of design is most commonly used in agricultural research?
   a) CRD b) RBD c) LSD d) Factorial design [Apply] [CO7]
9. In practice, how are the treatments assigned in a Latin Square Design?
   a) Randomly within each row and column b) Sequentially c) Based on previous results
   d) Fixed to specific rows and columns [Understand] [CO7]
10. Which of the following is a benefit of using factorial experiments?
    a) Reduced experimental error b) Increased precision c) Improved understanding of interaction of effects d) All of these [Remember] [CO7] **(2 x 10 = 20)**

Part B

Short Essay Type questions

*Answer any **3** questions.*

*Each question carries **5** marks.*

11. Define extraneous variable. Give two examples of extraneous variables. [Remember] [CO1]
12. What are the advantages of sampling over complete enumeration? [Understand] [CO2]
13. Explain Quantitative and Qualitative data. [Understand] [CO1]
14. Why should questions in a questionnaire be clear and concise? [Apply] [CO6]
15. Discuss the main advantages of RBD. [Analyse] [CO7]

(5 x 3=15)

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)
FIRST SEMESTER EXAMINATION
(2024 ADMISION ONWARDS)

MG1DSCSTA100 - Fundamentals of Statistics and Data Visualisation

Duration: $1\frac{1}{2}$ Hours Maximum: 50 Marks

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

Part A

Short answer questions

*Answer any **seven** questions. Each question carries **2 marks.***

1. Define pie diagram. [Remember][CO1]
2. What is meant by sampling error? [Understand][CO2]
3. What is the median of 4, 2, 7, 3, 10, 9, 13? [Understand][CO2]
4. Distinguish between absolute and relative measures of dispersion. [Understand][CO2]
5. Define mean deviation. Mean deviation is calculated by considering ------ deviations. [Understand][CO2]
6. If both standard deviation and coefficient of variation are 15, find the mean. [Understand][CO2, CO7]
7. If the first three raw moments about 5 are 2, 20, 40, then find the first 3 central moments. [Understand][CO1]
8. Give the expression of Pearson's measure of skewness. [Understand][CO2]
9. Mention any two advantages of rank correlation. [Understand][CO3]
10. State the classical definition of probability. [Understand][CO5]

(2x7=14)

Part B

Short Essay questions

*Answer any **four** questions. Each question carries **6 marks**.*

11. Evaluate the difference between nominal and ordinal scale data giving examples. [Understand][CO1]
12. Explain lottery method and random number table method in simple random sampling. [Understand][CO2]
13. Define arithmetic mean. The following are the marks of 10 students in an examination: 20, 40, 65, 83, 34, 51, 70, 62, 88, 94. What is the average mark of the students? [Understand][CO2]
14. If 3x+2y-80=0 is the regression equation of X on Y and 2x+3y-70=0 is the regression equation of Y on X, then find the two regression coefficients, and hence the correlation coefficient. [Apply][CO3, CO4, CO7]
15. (i) Define mutually exclusive and exhaustive events with examples. (ii) Two dice are rolled. Identify the events of getting a sum of 7 and same number. Are these events mutually exclusive? Justify your answer. [Understand][CO5]
16. Let A and B be two events associated with an experiment and suppose P(A)=0.5 while P(A 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. [Apply][CO5, CO6, CO7]

(6x4=24)

Part C

Essay questions

*Answer any **one** question. Each question carries **12 marks**.*

17. Define primary data. Discuss different methods of primary data collection. [Understand][CO1]
18. (i) Define correlation and briefly discuss its different types. (ii) Calculate the Karl Pearson's correlation coefficient between X and Y:

X	5	8	12	18	7
Y	12	10	22	17	14

[Analyse][CO3]

(12x1=12)

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)
FIRST SEMESTER EXAMINATION
(2024 ADMISION ONWARDS)

MG1MDCSTA101 - Data Analysis using Libre Calc

Duration: 1 Hour Maximum Marks:35

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

Part A

Multiple Choice Questions
Answer **All** Questions
Each question carries **2** marks

1. Delimiter in a CSV file is
   a) Semi colon b) Comma c) Colon d) Space
   [Understand] [CO1]
2. How do you sort data in ascending order by numbers in LibreOffice Calc?
   a) Data > Sort > Ascending b) Format > Sort > Ascending
   c) Right click and choose Format Cells d) Tools > Sort > Ascending
   [Understand] [CO1]
3. What is the purpose of VLOOKUP function in LibreOffice Calc?
   a) To perform vertical lookups b) To perform horizontal lookups
   c) To format cells based on conditions d) To prevent errors in data entry
   [Remember] [CO1]
4. A survey asks respondents to rate their favourite colour (red, blue, green, yellow). What scale of measurement is this?
   a) Nominal b) Ordinal c) Interval d) Ratio
   [Understand] [CO2]
5. What is the equivalent of a Pivot Table in LibreOffice Calc?
   a) Data Summary b) Pivot Chart c) Data Pilot d) Data Analyser
   [Understand] [CO4]
6. What is the main technique used to generate random numbers in LibreOffice Calc for normal and beta distributions?
   a) Box-Muller method b) Acceptance rejection sampling
   c) Direct sampling d) Inverse sampling
   [Remember] [CO3]
7. Which test statistic is used to test ANOVA?
   a) t statistic b) Chi square statistic c) Paired t statistic d) F statistic
   [Apply] [CO4]
8. Paired t test is used for comparing
   a) One sample b) At least one sample
   c) Two related sample d) Two independent sample
   [Remember] [CO4]
9. A Perfect Positive Correlation is
   a) 1 b) 0 c) -1 d) -1 & 1
   [Remember] [CO4]

10. Choose odd one out from the following
    a) ANOVA b) Sign test c) Median test d) Wilcoxon Signed-Rank Test
    [Analyse] [CO4]

[2 x 10 = 20]

Part B

Short Essay Type Questions
Answer any **three** Questions
Each question carries **5** marks

11. Describe the steps to remove duplicate entries from a single column in LibreOffice Calc. [Remember] [CO1]
12. How can you create a bar chart in LibreOffice Calc to compare sales data from different regions? [Analyse] [CO2]
13. Explain how to create random numbers between 1 and 100 in LibreOffice Calc? [Apply] [CO3]
14. What is the difference between one-tailed and two-tailed t-test? [Understand] [CO4]
15. Outline the steps involved in performing a chi-square test in LibreOffice Calc? [Remember] [CO4]

[5x3=15]