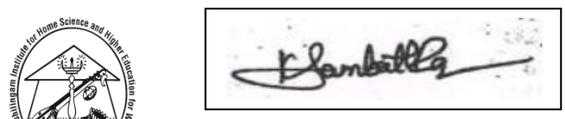

Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)
Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

Master's Degree Examination - May 2025
IV Semester

Class : II PG **Time: 3 Hours**
Major : Zoology **Max. Marks: 100**

23MZOC21 Biostatistics and Thesis Writing

Course Outcomes:
CO1: Understand the basic concept and applications of biostatistics.
CO2: Ability to calculate the descriptive statistics and its significance.
CO3: Knowledge on implementation of hypothesis in validating a model.
CO4: Identify the appropriate hypothesis testing procedure related to variables and samples .
CO5: Interpret current knowledge and skills to new methods in research design and report writing.

Part A **10 x 1 = 10**

Choose the Correct Answer

1. A histogram differs from a bar chart by CO1K2
   a. The bars in a histogram do not touch each other
   b. A histogram represents qualitative data
   c. A histogram represents continuous data with no gaps between bars
   d. A histogram does not require labeled axes

2. Select the one that is not a reliable source of statistical data CO1K1
   a. Peer-reviewed journals b. Data from anonymous online surveys
   c. Government statistical agencies d. Published scientific research

3. For a positively skewed distribution, the relationship among mean, median, and mode is CO2K2
   a. Mean = Median = Mode b. Mean < Median < Mode
   c. Mode < Median < Mean d. Median < Mean < Mode

4. In multiple regression analysis, the dependent variable is CO2K2
   a. Influenced by two or more independent variables
   b. Always qualitative
   c. Remains constant across observations
   d. Not required for model estimation

5. Sampling errors arise due to_____ CO3K1
   a. Non-response from participants b. Variability between the sample and population
   c. Inaccurate measurement tools d. Poor questionnaire design

6. Poisson distribution is most appropriate for CO3K2
   a. Modeling the number of defective items in a fixed sample size
   b. Modeling rare events in a fixed interval of time or space
   c. Modeling the probability of two outcomes in a finite number of trials
   d. Modeling the number of events occurring in a fixed interval when the events are independent and occur with a known constant mean rate

7. A paired t-test is appropriate when CO4K1
   a. Comparing means of two independent groups
   b. Comparing means of the same group before and after treatment
   c. The data is nominal
   d. The variance of the two groups is unequal

8. Choose the true statement about Kruskal-Wallis test. CO4K3
   a. It is used to test for differences between two independent samples.
   b. It is a non-parametric test used for comparing more than two independent groups.
   c. It assumes that the samples are normally distributed.
   d. It is used when the data is nominal.

9. Select the tools which is commonly used to detect plagiarism in academic writing. CO5K1
   a. SPSS b. End Note c. Turnitin d. Excel

10. List the type of research that is focused on practical applications and solving immediate problems. CO5K1
   a. Fundamental Research b. Applied Research
   c. Descriptive Research d. Experimental Research

Part B **5 × 6 = 30**

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. Differentiate between Primary and Secondary Data. CO1K4

(or)

11.b. You are given the frequency distribution of marks obtained by students in an exam. How would you decide whether to use a histogram, frequency polygon, or give curve for representation?-Justify. CO1K5

12.a. Explain the applications of measurements of central tendency. CO2K3

(or)

12.b. Discuss the correlation and explain its types. CO2K2

13.a. List the assumptions of a binomial distribution. CO3K3

(or)

13.b. State three properties of the normal distribution. CO3K1

14.a. Report the application of non-parametric tests. CO4K6

(or)

14.b. Explain Wilcoxon Signed-Rank test. When is it used? CO4K4

15.a. Discuss the different types of research and their applications. CO5K2

(or)

15.b. Summarize the different types of reference systems used in research. CO5K5

Part C **5 × 12 = 60**

Answer ALL questions

Each answer should not exceed 800 words or four pages

16.a. Summarise the sources of statistical data? Explain with examples. CO1K2

(or)

16.b. Explain different types of graphical representation of statistical data**.** CO1K2

17. a. Compute the Mean, Median, and Mode for the given data. CO2K3

Hours Studied	Frequency (f)
0 - 2	8
2 - 4	10
4 - 6	20
6 - 8	15
8 - 10	7

(or)

17.b. Discuss the types of correlation CO2K2

18.a. Explain probability and non-probability sampling with their types and advantages. CO3K3

(or)

18.b. Point out the steps involving in one way ANOVA. CO2K4

19.a. A researcher wants to test if a diet plan reduces weight. Given below are the before and after weights of 6 individuals. Calculate the paired t-test at 5% significance. CO3K5

Person	Before (kg)	After (kg)
1	78	74
2	85	80
3	90	85
4	88	82
5	76	73
6	82	78

(or)

19.b. Perform the Wilcoxon Signed-Rank Test for the following before and after Study of blood pressure levels CO4K3

Patient	Before	After
1	140	130
2	135	128
3	150	140
4	145	138

20.a. Discuss the strategy for identify and formulate a research problem CO5K2

(or)

20.b. Categorize the key components of a research thesis with their importance. CO5K2

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