

M.Sc. ZOOLOGY
FIRST SEMESTER
BIostatistics AND RESEARCH METHODOLOGY
MSZ-101

**SET
B**

[USE OMR FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

(Objective)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

1 × 20 = 20

1. What kind of sampling are we using if we first divide our population into groups based upon some factor like age, gender, or voting preference?
 - a. Stratified Sampling
 - b. Systematic Sampling
 - c. Simple Random Sampling
 - d. Cluster Sampling
2. What is a one-sample t-test used for?
 - a. Comparing means from a sample and a population
 - b. Comparing means from two separate samples
 - c. Comparing means from two related samples
 - d. Comparing means from more than two samples
3. The examination of differences among the samples is called:
 - a. Standard Deviation
 - b. Variance
 - c. ANOVA
 - d. Probability
4. In calculating Standard Deviation, the deviation taken from actual mean is:
 - a. Indirect method
 - b. Shortcut method
 - c. Direct method
 - d. Long cut method
5. The values recorded in an experiment or observation are called:
 - a. Series
 - b. Data
 - c. Equation
 - d. Sets
6. The value of an item is called:
 - a. Variance
 - b. Variable
 - c. Observation
 - d. All of these
7. How many sections are there in the Indian Prevention of Cruelty to Animal Act?
 - a. 19 sections
 - b. 29 sections
 - c. 39 sections
 - d. 49 sections
8. Copyright covers the right for:
 - a. Literary
 - b. Songs
 - c. Art
 - d. All of these
9. Trade Mark can be:
 - a. Sign
 - b. Drawings
 - c. Emblem
 - d. All of these
10. PFA works on ethical issues of:
 - a. Domestic animals
 - b. Wild animals
 - c. Both a & b
 - d. None of these

11. What do we call the probability sampling in which the researcher randomly selects a subset of participants from a population?
 - a. Convenience Sampling
 - b. Cluster Sampling
 - c. Simple Random Sampling
 - d. Stratified Sampling
12. What is an independent t-test used for?
 - a. Comparing means from a sample and a population
 - b. Comparing means from two separate samples
 - c. Comparing means from two related samples
 - d. Comparing means from more than two samples
13. Which of the following is the FIRST step of a hypothesis test?
 - a. Check the mean and median
 - b. Find your test statistic
 - c. State your conclusion
 - d. State your null & alternative hypotheses
14. The term ANOVA was first proposed by:
 - a. R.A. Fisher
 - b. Sir William Gosset
 - c. James Bernoulli
 - d. None of the above
15. Which is not affected by extreme values?
 - a. Mean
 - b. Median
 - c. Mode
 - d. Range
16. The spread of data set from central tendency is called:
 - a. Dispersion
 - b. Distribution
 - c. Scattering
 - d. Range
17. Which one of the following is the correct name?
 - a. Prevention of Cruelty to Animal Act, 1961
 - b. The Prevention of Cruelty to Animal Act, 1961
 - c. The Prevention of (Cruelty to Animal) Act, 1960
 - d. None of these
18. What is the full form of IAEC?
 - a. International Animals Ethics Committee
 - b. Interim Animals Ethics Committee
 - c. Institutional Animals Ethics Committee
 - d. Intern Animals Ethics Committee
19. Duration of copyright of a photograph stays for:
 - a. Life time
 - b. Life time + 60 years
 - c. 60 years
 - d. None of these
20. Who approves the research proposal in an institute where large animals are used in experiment?
 - a. The University administrative authority
 - b. IAEC
 - c. CPCSEA
 - d. All of these

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. What is the full form of CPCSEA? Write a note on the function of CPCSEA. 2+8=10
2. What do you mean by research design? State the various functions of research design. 2+8=10
3. Distinguish between: 2.5×4=10
 - a) Applied Vs Fundamental research
 - b) Conceptual Vs Empirical research
 - c) Quantitative Vs Qualitative research
 - d) Descriptive Vs Analytical
4. Explain Probability and Non-probability sampling methods. What are the differences between Probability and Non probability sampling methods? 4+4+2=10
5. Ten individuals are chosen at random from a normal population and their heights found to be 63, 63, 66, 67, 68, 69, 70, 70, 71, 71 inches. Test whether the sample is drawn from a population with a mean height of 66 inches. [Table value, $t_{0.05}(9) = 2.26$] 10
6. Define Standard Deviation. Write the merits, demerits and uses. Calculate the standard deviation for the following data. 2+3+5=10

Size of the item (x)	6	7	8	9	10	11	12
Frequency	3	6	9	13	8	5	4

7. A certain amount of manure was used on four plots of land (A, B, C and D). Four beds were prepared in each plot and the manure was used. The output of the crop in the beds of plots (A, B, C and D) is given below. Using ANOVA, find out whether the difference in the means of the production of crops of the plots is significant or not? Also write the steps involved in calculation of ANOVA. 7+3=10

A	B	C	D
6	15	9	8
8	10	3	12
10	4	7	1
8	7	1	3

8. Write the differences between Mean and Median. What are the merits and demerits of mean? Also find out the harmonic mean for the following data - 10, 20, 30 and 40. 4+4+2=10

== *** ==