REV-01
MSZ/02/07

2025/12

SET A

M.Sc. ZOOLOGY
FIRST SEMESTER (REPEAT)
BIOSTATISTICS AND RESEARCH METHODOLOGY
MSZ-101

[USE OMR FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 min. **Marks: 20**

Choose the correct answer from the following: *1X20=20*

1. Industrial design may consist of-
   a. Shape of an article
   b. Size of an article
   c. Lines or colour
   d. All of these

2. How many sections are there in the Indian Prevention of Cruelty to Animal Act?
   a. 19 sections
   b. 29 sections
   c. 39 sections
   d. None of these

3. What is the full form of IAEC?
   a. Institutional Animals Ethics Committee
   b. International Animal Ethics Committee
   c. Institutional Animal Ethical Committee
   d. None of these

4. For registration under IPR, an invention must meet the criteria of -
   a. Novelty
   b. Non-obviousness
   c. Industrial application
   d. All of the above

5. What is called if you copy the text directly from the internet and use it in your dissertation?
   a. Ethical issue
   b. Plagiarism
   c. Piracy
   d. None of these

6. Exploration of unknown facts which though exists, but not known by the society. Those facts which are mysterious or difficult to interpret are searched and introduced before the society by the research is called ----------.
   a. Explicating research
   b. Implementory research
   c. Exploratory research
   d. Standing research

7. A concept which can take on different quantitative values is called a ----------
   a. Variant
   b. Hypothesis
   c. Variety
   d. Variable.

8. Correlation research design establishes a relationship between two ----------
   a. Related variables
   b. Unrelated variables

c. All variables

d. Continuous and Discontinuous variables

9. Descriptive design is a ----------
   a. Practical based research method
   b. Theory based research method
   c. Merit based method
   d. None of the above

10. Research in which the independent variable is manipulated is ------
   a. Non-experimental hypothesis treating research
   b. Non-experimental hypothesis testing research
   c. Experimental hypothesis-testing research
   d. All of the above

11. Which sampling method gives each member an equal chance of being selected?
   a. Purposive sampling
   b. Simple random sampling
   c. Quota sampling
   d. Judgment sampling

12. Snowball sampling is commonly used in-
   a. Clinical trials
   b. Studies involving rare or hidden populations
   c. School-based research
   d. Agricultural surveys

13. A researcher compares student marks **before and after** a training program. Which test applies?
   a. Independent t-test
   b. One-sample t-test
   c. Paired t-test
   d. Chi-square test

14. Chi- square test is used to analyze-
   a. Mean difference
   b. Correlation between variables
   c. Association between categorical variables
   d. Population standard deviation

15. ANOVA was developed by-
   a. Fisher
   b. Pearson
   c. Student (Gosset)
   d. Karl Pearson

16. The relationship between Mean, Median and Mode is given by
   a. Mode = 2 Median + 3Mean
   b. Median =2 Mode - 3 Mean
   c. Mode = 3 Median- 2 Mean
   d. None of the above

17. The coefficient of Range is given by -
   a. $\frac{H+L}{H-L}$
   b. $\frac{H+L}{H+L}$

c. $\frac{H-L}{H-L}$

d. $\frac{H-L}{H+L}$

18. Which of the following is not a positional average?

a. Mean
b. Mode
c. Median
d. None of the above

19. The Measures of Central Tendency that can be calculated graphically

a. Mean only
b. Median only
c. Both Mode and Median
d. None of the above

20. Which kind of dispersion that is not a distance Measure -

a. Range
b. Quartile Deviation
c. Mean Deviation
d. Standard Deviation

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(Descriptive)

Time : 2 hrs. 30 min. Marks : 50

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

1. Explain the concept of a good research design highlighting the significance. 10

2. **Write short note on -** 5+5=10
   (a) CPCSEA (b) IAEC

3. Write short notes on the following-- 2.5x4=10
   (a) Patent (b) Design (c) Copyright (d) Trademark

4. Elucidate in detail about the various forms of research and its types 10

5. Explain different types of sampling techniques with suitable diagrams and examples. 10

6. A nutritionist claims that the average hemoglobin level of college students is **13 g/dL**. A sample of **10 students** shows an average hemoglobin level of **12.4 g/dL** with a **standard deviation (SD)** of 1.2 g/dL. Test whether the hemoglobin level is significantly different from **13 g/dL** at $\alpha = 0.05$ (two-tailed test). 10

7. Solve the following problems Mathematically: (5+5=10)

   A. (i) Find the missing frequencies f_1 and f_2 of the following If the Mean is given by 1.46.

Class Interval	0	1	2	3	4	5	Tota l
Frequency	46	f_1	f_2	25	10	5	200

(ii). Find the Mode of the following Distribution Data:

Class Interval	10-19	20-29	30-39	40-49	50-59	60-69
Freque ncy	22	10	23	31	15	17

8. B. (i) Find the missing frequency f_1 and f_2 in the following frequency distribution table if N= 49 and Median is 19.5 **(5+5=10)**

Class Interval	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency	5	f_1	15	10	5	f_2	2	2

(ii) Find the Median of the following data:

Class Interval	1500-2000	2000-2500	2500-3000	3000-3500	3500-4000	4000-4500	4500-5000
Frequency	14	56	60	86	74	62	48

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