

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

**SET
B**

[USE OMR FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 min.

(Objective)

Marks: 20

1X20=20

Choose the correct answer from the following:

1. The value which occurs most frequently, is the
a. Median
b. Mean
c. Range
d. None of these
2. Which of the following is a distance measure of dispersion
a. Quartile deviation
b. Mean deviation
c. Standard deviation
d. Variance
3. Which of the following is not the measure of central tendency
a. Mean
b. Median
c. Range
d. Both Mean and Median
4. Which of the following that is not affected by extreme value?
a. Mode
b. Median
c. Range
d. Both Mode and Median
5. The relationship between mean, median and mode is given by
a. $\text{Median} = 3\text{mode} - 2\text{mean}$
b. $\text{Mode} = 3\text{median} - 2\text{mean}$
c. $\text{Mode} = 2\text{median} - 3\text{mean}$
d. $\text{Median} = 3\text{mode} - 2\text{mean}$
6. Copyright infringement is the use or production of copyright-protected material without the permission of _____.
a. Copyright holder
b. Student
c. Freelancer
d. All of the above
7. 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. Exploratory research
b. Explicating research
c. Implementory Research
d. Standing research
8. In natural sciences and social sciences, quantitative research is based on the aspect of ---
a. Quantity or extent
b. Quality or extent
c. Quality, Quantity and extent
d. All of these
9. A concept which can take on different quantitative values is called a _____.
a. Variant
b. Hypothesis
c. Non variant
d. Variable
10. Correlation research design establishes a relationship between two _____.

- a. Related variables
 - b. Unrelated variables
 - c. All variables
 - d. Continuous and Discontinuous variables
11. The critical value of the Chi-Square test depends on-
- a. Sample size and test statistic
 - b. Degrees of freedom and significance level
 - c. Mean and standard deviation
 - d. Observed and expected frequencies
12. In the Chi-Square test, "O" refers-
- a. Expected frequencies
 - b. Observed mean
 - c. Observed frequencies
 - d. Overall data
13. In a t-test, what does a two-tailed test evaluate?
- a. Whether the mean of one group is greater than another
 - b. Whether the mean of one group is less than another
 - c. Whether there is any difference in means between two groups, regardless of direction
 - d. Whether the variances of two groups are equal
14. Which sampling method divides the population into groups and then randomly selects some of these groups for study?
- a. Systematic sampling
 - b. Cluster sampling
 - c. Snowball sampling
 - d. Judgmental sampling
15. In random sampling, every individual in the population-
- a. Has an equal chance of being selected
 - b. Is selected based on convenience
 - c. Is grouped by characteristics
 - d. Must be included in the sample
16. Industrial design may consist of-
- a. Shape of an article
 - b. Size of an article
 - c. Lines or colour
 - d. All of these
17. An invention must meet which of the following criteria?
- a. Novelty
 - b. Non-obviousness
 - c. Industrial application
 - d. All of these
18. 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
19. 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
20. The term *ethics* was derived from the -
- a. German word
 - b. Spanish word
 - c. English word
 - d. None of these

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(Descriptive)

Time : 2 hrs. 30 min.

Marks : 50

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

1. Write short notes on the following— 2.5×4=10
(a) Patent (b) Design (c) Copyright (d) Trademark

2. What is the full form of CPCSEA? Write a note on the function of CPCSEA. 2+8=10

3. Highlight in detail the various forms of Research and its types. 10

4. Elucidate in detail the various concepts of a good research design. 10

5. A researcher wants to know if a dice is fair. They roll the dice 60 times and record the following outcomes: 10

Face of Dice	1	2	3	4	5	6
Frequency	8	10	12	11	9	10

Test at the 5% significance level whether the dice is fair.

6. An academic institution states that the average IQ of its students is 120. A psychologist randomly selects 40 students from the institution and finds their average IQ to be 122 with a standard deviation of 6. Using a 0.05 significance level. Formulate the null and alternative hypotheses and Conduct a one-sample t-test and interpret the result. 10

7. Solve these following Mathematical problems given below: 5+5=10
a) Find the median of the following frequency distribution

Class interval	0- 9	10 - 19	20 - 29	30-39	40 - 49	50 -59
Frequency	3	6	8	15	10	8

- b) Find the missing frequency (x) of the following data if it mode is 240.

Class interval	0 - 100	100 - 200	200 - 300	300- 400	400- 500
Frequency	140	230	270	x	150

8. Solve these following frequency Mathematical problems given below: 5+5=10

a) Frequency distribution of height in cms of 387 students in a school is given in the table below. Find the inter quartile range and quartile deviation of height distribution.

Height in cms	150	152	154	156	158	160	162	164	166
No of students	28	40	52	100	60	48	32	20	7

b) Water percentage in the body of species of fish and their frequency is given in the table below. Calculate the Quartile deviation.

C.I	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	65-70
Frequency	5	7	8	3	2	4	3	1	5	2

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