PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(Fourth Semester)

Branch – **ZOOLOGY**

BIOSTATISTICS AND RESEARCH METHODOLOGY

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 Which of the following measures represents the middle value of a data set when arranged in ascending order?
(i) Mean (ii) Median
(iii) Mode (iv) Range

2 What is the range of values for the correlation coefficient?
(i) -1 to 1 (ii) 0 to 1
(iii) $-\infty$ to ∞ (iv) 1 to ∞

3 What is the primary principle behind centrifugation?
(i) Separation of components based on size
(ii) Separation of components based on density
(iii) Separation of components based on charge
(iv) Separation of components based on solubility

4 In GLC Separation occurs primarily due to differences in:
(i) Molecular weight (ii) Charge
(iii) Polarity (iv) Volume

5 SPSS is primarily used for
(i) Word processing (ii) Statistical analysis
(iii) Graphic design (iv) Web development

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Explain the significance of diagrammatic representation of data in Research.
OR
b Calculate mean for the following data

X	0-10	10-20	20-30	30-40	40-50	50-60	60-70
f	10	20	35	40	25	25	15

7 a Illustrate the types of regression.
OR
b Discuss the steps involved in ANOVA.

8 a List out the advantages of fixation.
OR
b Discuss the methods of staining.

Cont....

9 a Explain principles and applications of chromatography.

OR

b Discuss the applications of mass spectroscopy.

10 a Narrate the preparation of index cards.

OR

b Enumerate the importance of internet and e journals in research.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Define primary data and brief the methods of collecting primary data.

OR

b Calculate standard deviation from the data given below.

C.I	10-20	20-30	30-40	40-50	50-60	60-70	70-80
F	2	5	7	9	6	4	1

12 a Compare paired 't' test and unpaired 't' test.

OR

b Determine Karl Pearson's Correlation coefficient from the given data

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

13 a Discuss the role of electron microscopy in biological research.

OR

b Elucidate principles and applications of ultracentrifugation.

14 a Elaborate the application of NMR and IR in detail.

OR

b Describe RTPCR techniques in detail.

15 a Discuss the steps in preparation of scientific paper for publication in a journal.

OR

b Narrate computer aided techniques for data Analysis. Also brief the significance of SPSS in research.

Z-Z-Z END