18. Write an essay on the different methods of data collection in statistics using suitable examples and add a note on their advantages and disadvantages.

19. The following table shows the total hours of rainfall (x) for 7 days during the month of October and total number of umbrellas sold by a shop (y):

x	2.5	1.5	4.5	6.8	3.0	5.0	3.5
y	10	8	20	22	7	18	12

(a) Plot a scatter diagram for the above data.

(b) Calculate the equation for regression line of y on x and plot it on the scatter diagram.

(c) Find out the residuals for the day when the total hours of rainfall was 3.5 hand 1.5 h.

20. What is MS Power Point? Describe with examples the different modes of power point, components and how you will prepare a power point slide. Add a note on its application in biomedical research.

S.No. 7373 **PN 15 ZO 7**

(For candidates admitted from 2015–2016 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Zoology

BIOPHYSICS, BIOSTATISTICS AND COMPUTER APPLICATIONS

Time : Three hours Maximum : 100 marks

SECTION A — (10 × 2 = 20)

Answer ALL questions

1. Entropy

2. Gamma rays

3. Isoelectric point

4. Retention time

5. Central tendency

6. Differentiate continuous and discontinuous data

7. Null hypothesis

8. Interquartile range

9. Mainframe computer

10. Program counter

SECTION B — (5 × 7 = 35)

Answer ALL questions,

Choosing either (a) or (b) in each

11. (a) Define thermodynamic laws. Explain the different principles and applications of these laws using suitable examples.

Or

(b) Classify spectroscopy based on type of radiative energy and nature of interaction.

12. (a) Give an account on the working principle and applications of size exclusion chromatography.

Or

(b) What is agglutination? Describe how you will perform a radial immunodiffusion.

13. (a) Why is data important in statistics? Give a brief account on the different types of data used in statistics.

Or

(b) What is the use of histogram in statistics in terms of data distribution and what are its applications?

14. (a) What is variance? Explain the advantages and applications of bionomial distribution as a means of measuring probability distribution.

Or

(b) For the following paired data determine Karl Pearson's coefficient of correlation:

Income	1000	3000	2000	1500	4000	2500	4500	3500
Expense	800	2000	1500	900	2800	1000	3000	2500

15. (a) Describe the various components of a computer and application of computer in biomedical research.

Or

(b) What is internet protocol? Describe the versions of internet protocol and their applications.

SECTION C — (3 × 15 = 45)

Answer any THREE questions

16. What is photodynamic effect? Discuss the principle, applications and uses of photoelectric effect.

17. Describe with a neat diagram the working principle and uses of SDS-PAGE.