LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc.DEGREE EXAMINATION –**ADVANCED ZOOLOGY AND BIOTECHNOLOGY**

FOURTH SEMESTER – **APRIL 2019**

16/17UZO4ES03– BIOPHYSICS AND BIOSTATISTICS

Date: 09-04-2019   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART – A   (10x2= 20 Marks)

Answer All questions

1. Define surface tension.

2. Comment on viscosity.

3. Define Fick's law.

4. What is echolocation?

5. Define sedimentation and sedimentation coefficient.

6. Distinguish continuous data from discrete data.

7. Write the uses of bar diagrams.

8. Define chronological data with an example.

9. Write the formula for standard deviation and its explanation.

10. Explain null hypothesis.

PART- B   (4x10= 40 Marks)

Answer any FOUR questions

11. Describe osmosis, osmotic pressure and its applications.

12. Explain the principle of electrophoresis.

13. Give an account on the biological applications of X- Rays.

14. Draw a pie diagram of the following data. The number of neutrophils found in 100cc of blood in various immunosuppressed patients

Patient	A	B	C	D	E
No. of neutrophils	62	58	47	34	29

15. Explain the applications of the following

(a) Student't' Test

(b) Standard error

(c) Coefficient of variation

16. Calculate the coefficient of variation for the weight (g) of 10 fishes

    16,18,12,14,16,20,21,16,15,14

PART –C   **(2x20= 40 Marks)**

Answer any TWO questions

17. Write a detailed account on autoradiography and its uses.

18. Define centrifuge. Write an essay on different types of centrifuge.

19. Calculate Karl Pearson's coefficient of skewness from the following data.

Length in cm	0-6	6-12	12-18	18-24	24-30
No. of rats	4	8	16	9	3

20. In an experiment on immunization of cattle from tuberculosis, the following results were obtained, calculate the Chi square and discuss the effect of vaccine in controlling susceptibility to tuberculosis (5% value of chi square for one degree of freedom =3.84).

Type	Affected	Not affected	Total
Inoculated	24	32	56
Not inoculated	52	12	64
Total	76	44	120

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