

# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



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

**FOURTH SEMESTER – APRIL 2022**

**UAZ 4603 – BIOPHYSICS AND BIostatISTICS**

Date: 23-06-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

## PART – A

**Answer All Questions**

**(10x2=20 Marks)**

1. Define reverse osmosis.
2. Differentiate hypotonic medium from hypertonic medium with examples.
3. Comment on echolocation.
4. Define Beer-Lambert law.
5. What is avalanche effect?
6. Differentiate discrete series from continuous series with an example
7. Mention the uses of bar diagram.
8. Define median and write its formula for odd and even distribution.
9. Write the formula for standard deviation and its explanation.
10. Define null hypothesis.

## PART – B

**Answer any FOUR Questions**

**(4 x 10 = 40 Marks)**

11. Explain diffusion, types and add a note on its applications.
12. Enumerate the principle and applications of ultrasound.
13. Describe the principle and working procedure for autoradiography.
14. Give an account on sample and sampling.
15. Draw a pie diagram for the following distribution of chlorine in different tissues

Distribution	Plasma	Cells	C. S. F	muscle	Nerve
Amount (mg)	70	50	80	40	120

16. Calculate the standard deviation of the following data.

Amount of Zinc consumption/day (in mgs)	3	5	6	7	8
No. of individuals	2	6	9	12	13

## PART – C

**Answer any TWO Questions**

**(2 x 20 = 40 Marks)**

17. Write an essay on the principle, procedure of any three types of centrifuges and their applications.
18. Write an essay on the principle, procedure and applications of electrophoresis.
19. Describe how will you collect and classify data, explain each with suitable examples.
20. From the following table test, whether smoking and lung ailment are independent. Calculate  $X^2$  and calculate and discuss that smoking habit does not cause lung ailment (5% value of  $X^2$  for one degree of freedom = 3.84).

	Lung ailment	No lung ailment
Smokers	75	105
Non-Smokers	25	95

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