LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FOURTH SEMESTER – **APRIL 2023**

UAZ 4603 – BIOPHYSICS AND BIOSTATISTICS

Date: 06-05-2023 Dept. No. Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

	SECTION A - K1 (CO1)
	Answer ALL the Questions **(10 x 1 = 10)**
1.	**Definitions**
a)	Osmotic pressure
b)	Haemolysis
c)	Half-life period
d)	Standard error
e)	Student T test
2.	**Fill in the blanks**
a)	Brownian movement is defined as the uncontrolled or erratic movement of ----------
b)	Autoradiography is a photographic method used to detect ---------- materials
c)	X-rays are a form of ----------
d)	Measures of central tendency is ----------
e)	Standard deviation formula----------
	SECTION A - K2 (CO1)
	Answer ALL the Questions **(10 x 1 = 10)**
3.	**Match the following**
a)	Fick's law - Higher frequency
b)	Plasmolysis - Comparison of mean
c)	Radioactive decay - ATP
d)	Mode - Turgor pressure
e)	Correlation - Half life
4.	**True or False**
a)	Movement of solutes from lower concentration to higher concentration is called simple diffusion
b)	LASER stands for Liquid amplification by stimulated emission of radiation
c)	Data should be numerically expressed
d)	BMI is a person's weight in kilograms divided by the height in meters
e)	A measure of central tendency is also referred to as measures of centre or central location.
	SECTION B - K3 (CO2)
	Answer any TWO of the following **(2 x 10 = 20)**
5.	Explain Brownian movement, surface tension and turgor pressure
6.	Illustrate the steps in autoradiography and mention its applications
7.	Construct a dataset and illustrate a simple, multiple, subdivided and percentage bar diagram.

8.	Distinguish descriptive and inferential statistics.
	SECTION C – K4 (CO3)
	Answer any TWO of the following **(2 x 10 = 20)**
9.	Compare the different types of radioactive decay.
10.	Illustrate Geiger-Muller counter and mention its applications
11.	Classify data and explain it with examples.
12.	Construct a dataset and illustrate histogram, frequency polygon and frequency curve.
	SECTION D – K5 (CO4)
	Answer any ONE of the following **(1 x 20 = 20)**
13.	Explain the types of diffusion.
14.	Construct a table for the following XY data and calculate the standard deviation and standard error. X= 7,8,12,8,6,10,13,7,9,10; Y= 12,15,13,8,10,11,14,8,11,10
	SECTION E – K6 (CO5)
	Answer any ONE of the following **(1 x 20 = 20)**
15.	Summarise the procedure for electrophoresis and mention its biological applications
16.	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

$$$$$$$