22ZOP420N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2025
(Fourth Semester)

Branch - **ZOOLOGY**

BIOSTATISTICS AND RESEARCH METHODOLOGY

Time: Three Hours — Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which one is the true example of primary data from the following options? a. Journal b. Report c. Census Report d. News paper	K1	CO1
	2	Mean hemoglobin of a sample of 100 pregnant women was found to be 10 mg with a standard deviation of 1.0 mg. The standard error of the estimate would be a. 0.01 b. 0.1 c. 1.0 d. 10.0	K2	CO1
2	3	ANOVA technique was developed by _____ a. Gosset b. R.A.Fisher c. Kalr pearson d. Laplace	K1	CO2
	4	_____ is the proportion of times an event occurs in a set of trials. a. Histogram b. Polygon c. Pie chart d. Probability	K2	CO2
3	5	Which of the following is commonly used as a fixative in histology? a. Formalin b. Xylene c. Glycerin d. Paraffin	K1	CO3
	6	The resolving power of a light microscope is approximately a. 200 nm b. 2 nm c. 0.02 nm d. 20 nm	K2	CO3
4	7	The stationary phase in paper chromatography is a. Silica gel b. Aluminum oxide c. Gas phase d. Cellulose	K1	CO4
	8	The component responsible for fragmenting the molecule in a mass spectrometer is a. Ionization source b. Mass analyzer c. Detector d. Magnet	K2	CO4
5	9	Which of the following is the first step in starting the research process? a. Searching sources of information to locate problem b. Survey of related literature c. Identification of problem d. Searching for solutions to the problem	K1	CO5
	10	The section of a thesis provides a summary of the entire research is a. Introduction b. Literature Review c. Abstract d. Conclusion	K2	CO5

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SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Write a note on frequency distribution.	K5	CO1
		(OR)		
	11.b.	Calculate the arithmetic mean for the following frequency distribution.		

Age	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Risk of Food Allergy	10	18	20	26	30	28	18

2	12.a.	Define correlation and give various methods in measuring correlation.	K2	CO2
		(OR)		
	12.b.	What is chi-square test and give its importance in Biostatistics.		
3	13.a.	State the principles and types of fixation used in histological studies.	K3	CO3
		(OR)		
	13.b.	Identify the construction, working mechanism and applications of an ultracentrifuge.		
4	14.a.	Narrate the principles and applications of paper chromatography.	K4	CO4
		(OR)		
	14.b.	Describe the Beer- Lambert law and its significance in UV- Visible spectroscopy.		
5	15.a.	Explain different types of plagiarism and suggest ways to prevent it in academic writing.	K5	CO5
		(OR)		
	15.b.	Analyze the role of e- journals and open- access journals in scientific research.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	What is collection of data and write the types of data.	K4	CO1
2	17	What is student T-test? What are the different types of T-Test involved.	K5	CO2
3	18	Compare and contrast Transmission Electron Microscopy (TEM) and Scanning Electron Microscopy (SEM).	K5	CO3
4	19	Clarify the steps involved in performing RT- PCR and its applications.	K5	CO4
5	20	Discuss how research findings can be effectively presented using statistical software, focusing on the graphical representation and interpretation of results.	K6	CO5

Z-Z-Z END