

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(Third Semester)

Branch - **BIOCHEMISTRY**

BIostatistics

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. Diagrams and Graphs are tool of _____.
(i) Collection data (ii) Analysis
(iii) Presentation of data (iv) All of these
2. Standard deviation is always taken from -----.
(i) Median (ii) Mode
(iii) Mean (iv) None of these
3. How many dependent variables are used in multiple regression?
(i) One (ii) One or more
(iii) Two or more (iv) Two
4. In a Binomial Distribution, if p, q and n are probability of success, failure and number of trials respectively then variance is given by _____.
(i) np (ii) npq
(iii) np²q (iv) npq²
5. If the assumed hypothesis is tested for rejection considering it to be true is called?
(i) Null hypothesis (ii) Statistical hypothesis
(iii) Simple hypothesis (iv) Composite hypothesis

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a What is data and what are its types?
OR
b Write the differences between the Diagram and Graph.
- 7 a Define: i) Median ii) Mode.
OR
b Discuss the term Kurtosis.
- 8 a Define: correlation and its types.
OR
b Explain the methods of studying regression.
- 9 a What is binomial distribution?
OR
b Write the properties of normal distribution.
- 10 a What is meant by sampling? What are its types?
OR
b Expand the terms: i) SPSS ii) SAS.

Cont....

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11 a. Elaborate the data presentation process.

OR

b. Elaborate the diagrammatic presentation of data.

12 a. Calculate the median of from the following table.

Marks	Frequency
0-10	22
10-20	38
20-30	46
30-40	34
40-50	20

OR

b. The following table gives the wages of employees in two factories: In which factory, there is greater variation in the distribution of wages per employee?

Particulars	Factory A	Factory B
No. of Employees	50	100
Average wage per month per worker	120	85
Variance of the wage per employee per month	9	16

13 a. A random sample of 5 college students is selected and their marks in molecular biology and clinical biochemistry are found to be

Subjects	1	2	3	4	5
Molecular Biology	85	60	73	40	90
Clinical Biochemistry	93	75	65	50	80

Calculate the Spearman's rank correlation coefficient.

OR

b. From the following data of yield of rice and wheat in 5 places, find out the two regression equations.

Rice (X)	60	20	10	40	80
Wheat (Y)	90	60	50	80	120

14 a. A bag contains 10 white, 5 red and 20 black balls. Two balls are drawn at random. Find the probability that they are both black.

OR

b. The weight of grape fruit from a large shipment averages 10gms with a standard deviation of 1.5gms. If these weights are normally distributed, what percent of frappe fruits do you expect to weigh between 12 to 14gms.

15 a. A sample of 100 individuals is drawn from a population whose mean is 162 and Standard deviation is 4.16. The mean of the sample is 162.23. Does the sample mean represent a significance divergence from the population mean. Explain.

OR

b. A random sample of size 10 had a mean 14.3 and standard deviation is 1.44. Test at the 5% level of significance that the mean of the population $\mu = 15$. Find the degrees of freedom.

Z-Z-Z

END