

Paper code - ...

Your Roll No.

Examination: MSc Toxicology, Semester: III (2022)

Paper: Applied Statistics (Code: MTX-301)

Time: 3 h

MM: 75

This Q paper contains 5 questions, each of 15 marks.

Q1. Attempt all questions

- a) Define Interpolation and extrapolation in short.
- b) What is the Equation of a line?
- c) Newton's forward interpolation formula is used when the value of y is required near the(beginning/End of the table).
- d) What would be probability of getting tail in throw of a coin.
- e) Define probability.
- f) What is Pascal's Triangle?
- g) Normal Distribution is also called distribution
- h) What is Crude Death Rate?
- i) Vital statistics are expressed asor
- j) Define Age Specific Fertility Rate.

Q2 Estimate Population in 1895 and 1925 from the following Statistics using Newton Forward and Backward Interpolation

Year	1891	1901	1911	1921	1931
Population	46	66	81	93	101

[OR]

Answer any two in short

- a) The Center for Disease Control (CDC) has the following information regarding the percentage of pregnant women smokers organized by year. Estimate the percentage of pregnant women that were smoking in the year 1998. (Algebraic method of interpolation)

Year	1990	1991	1992	1993	1994	1995	1996	2000	2002	2003	2004
Percent	18.4	17.7	16.9	15.8	14.6	13.9	13.6	12.2	11.4	10.4	10.2

Name of Department: **DEPARTMENT OF BIOCHEMISTRY, SCLS**
 Name of the HOD: **PROF. RANA ZAIDI**

REVENUE

(Rs. In Lakhs)

HEAD OF ACCOUNT OF REVENUE	Fee receivable for the entire course	Fee receivable for the current financial year (2022-23)	Fee received for the current financial year * (2022-23)
B.Sc.	157.5	52.50	23.75
M.Sc.	101.08	50.54	22.22
Ph.D.	81.98	15.06	10.0
Total	340.56	117.8	55.97

- * Some fee status verifications by Deloitte are pending
- # List of students attached separately
- * Fee submission for the upcoming semester is expected in January, 2023

- b) Write short note on binomial expansion method of interpolation.
- c). With suitable diagram explain graphical Method of interpolation

Q3 Answer any two in details

- a) Explain Basic features of probability. What do you understand by relative frequency of Probability?
- b) Explain addition and multiplication rules of Probability
- c) If the probability of the horse A winning the race is $1/5$ and the probability of the horse B winning the same race is $1/6$, What would be probability that one of these horses will win the race
- d) A bag contains 5 white and 3 black balls. Two balls are drawn at random one after the other without replacement. Find the probability that both balls drawn are black.

Q4 Answer any two in details

- a) Explain Normal distribution and enlist its five characteristics.
- b) Write short note on PPOISSON distribution
- c) Describe main features of binomial distribution
- d) The pulse rate of healthy males follows a normal distribution. The mean pulse rate is 72/min and the standard deviation taken during table preparation is of 3.5/min. Find out Percentage of person's with pulse rate ± 2 beats from the mean

Q5 Write short note on any Two

- a) Wilcoxon Signed Rank Test (WSR-TEST)
- b) Mortality Rate
- c) Fertility rate
- d) Vital index

—End of Question paper—