

MASTER OF SCIENCE (MEDICAL BIOTECHNOLOGY) (CBCS-2018 COURSE)
M.Sc. (Medical Biotechnology) Sem-III : WINTER :- 2021
SUBJECT: BIOSTATISTICS

Day : Wednesday
Date 2/2/2022

W-20238-2021

Time : 10:00 AM-11:30 AM
Max. Marks: 30

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate full Marks.
- 3) Both the sections should be solved in **SAME** answer book.
- 4) Use of Non-programmable **CALCULATOR** is allowed.

SECTION-I

Q.1 Answer **ANY FIVE** of the following: **(05)**

- a) If $SE = 3.0$ and $N = 64$, what is the value of SD ?
- b) What are the columns headings in an ANOVA table? Name them.
- c) The relation $Y = 5x + 1.2$ between y and x is a linear fit, what is the estimated value of y corresponding to value $x = 0.4$.
- d) Define a partial regression coefficient.
- e) Define covariance.
- f) Use the sequence AAGGGTCCCTAGGG to find the probability of G following A.

Q.2 Answer **ANY TWO** of the following: **(10)**

- a) Draw typical scatter diagrams to indicate positive, negative and No correlations.
- b) Write a short note on stratified random sampling.
- c) Discuss the process and utility of Paired t-test.

SECTION-II

Q.3 Answer the following: **(05)**

- a) What is a type I error?
- b) What is the relative frequency of 4 in the set $\{3, 4, 4, 4, 5, 6, 8, 8\}$?
- c) Define a Pie chart, using an example.
- d) If covariance $(x, y) = 0.8$, variance $(y) = 4.0$, variance $(x) = 4.0$, what is the value of correlation coefficient?
- e) A contingency table has 5 rows and 4 columns. What is the degrees of freedom for Chi square test?
- f) Define f-test.

Q.4 Answer **ANY TWO** of the following: **(10)**

- a) Name at least two probability distributions and describe them.
- b) Discuss how Chi-Square tests can be used in opinion surveys?
- c) Write a short note on Gaussian Distribution.

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