

M. Sc. (Medical Biotechnology) Sem-III (Choice Based Credit System)

: SUMMER - 2019

SUBJECT : BIOSTATISTICS

Day : Friday
Date : 12/04/2019

Time : 02.00 PM TO 05.00 PM
Max. Marks : 60.

S-2019-1511

N.B.:

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**.
- 2) Attempt any **TWO** questions from Q. No. 2, 3 & 4 and any **TWO** questions from Q. No. 6, 7 & 8.
- 3) All questions carry **EQUAL** marks.
- 4) Answers to both the sections should be written in '**SAME**' answer books.
- 5) Use of calculator is **ALLOWED**.

SECTION-I

Q.1 Discuss various types of sampling methods with few illustrations. (10)

Q.2 Define the terms phenotypic and genotypic which are used as adjectives while specifying variabilities and correlations in Biometrics. Elaborate applications. (10)

Q.3 Complete the ANOVA, using the following information: (10)

Design RBD
Drugs used in Trial 10
No. of Blocks : 5
Variate : Rate of change in BMI
Total SS : 475.3
Sum of squares (Drugs) : 375.3
Block sum of squares : 65.0

Computed F value should be accurate upto 2 decimals. Assume table value of F : 2.75. Test hypothesis using F-Test.

Q.4 Find the correlation coefficient (r), Regression coefficient (b) and Intercept (c) for the following data: (10)

x (Age-days)	6	7	8	9	10	11	12
y (height of plant in cm)	10	11.1	12	13.5	15	16	17

Use the results to determine whether the growth is linear from 6th day to 12th day. Find predicted height on 13th day.

SECTION-II

Q.5 Discuss the following concept (Any **TWO**): (10)

- a) Scatter diagram
- b) Randomization
- c) Exponential growth.

P.T.O.

Q.6 Following data contains, results of an HIV. Survey conducted at a Hospital. (10)

	Rural	Semi URBAN	URBAN
HIV +ve	6	7	12
HIV -ve	17	21	27
Not tested	7	12	11

Use Chi-square test to determine the association between region and prevalence of HIV. Chi-square Table value : 3df- 2.365, 4df- 3.356.

Q.7 Write short notes on any **TWO** of the following: (10)

- a) T-tests and Z-tests
- b) Covariance
- c) Trend line fitting using Spreadsheets.

Q.8 A patient who is under physiotherapy showed following Anthropometric (10) measurements (Angle between index finger and middle finger).

Days	7	14	21	28	35	42	49	56	63
Angle	3	4	4	6	10	15	25	31	32

Draw a Scatter-Diagrams and argue that the improvement in movement follows a logistic curve.

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