BACHELOR OF SCIENCE (BIOTECHNOLOGY) (2010 COURSE)
T.Y.B.Sc. (Biotechnology) Sem-V : WINTER :- 2021
SUBJECT: BIOMETRICS, BIOSTATISTICS & QUALITY CONTROL

Day : Saturday
Date 5/2/2022

W-6286-2021

Time : 02:00 PM-05:00 PM
Max. Marks: 80

N.B
1) All questions are **COMPULSORY**.
2) Both the sections to be written in **SEPARATE** answer book.
3) Figure to right indicate **Full** marks.

SECTION - I

Q.1 A) Answer any **ONE** of the following. (06)
a) Discuss layout and the process of randomization in a Randomized Block Design. Explain the associated ANOVE in brief.
b) Find the Mean, Variance and Std Deviation given that X=30.5, X^2= 155.25, n=7, where X and X^2 are the sum of squares respectively, according to the standard notations.

Q.1 B) Answer any **TWO** of the following: (10)
a) Match the columns

	Column A		Column B
1	Stability	a	Used in ANOVA
2	Genotypic – and Environmental value	b	Used to determine direct and indirect effects
3	F-test	c	Eberheart and Russel Model
4	Path analysis	d	Split of Phenotypic values

b) Write a brief account on Probability and Correlation and regression.

c) STATE TRUE OR FALSE
i) Variance is a measure of dispersion and it can never have an negative value.
ii) Range is computed as te difference between Max and Minimum value in the data set.
iii) If value of variance is 25 then values of std deviation is 5.
iv) In increase in value of X results in increasing value of Y then y is negatively correlated to x.
v) Corelation is measure of dispersion and it can never have negative value

Q.2 Write short notes on any **FOUR** (16)
i) Randomization
ii) Heterosis
iii) Covariance
iv) Exponential growth curve
v) Trend line fitting using spreadsheet

SECTION - II

Q3. Answer any **TWO** of the following (12)
a) Explain the type of correlation. Give its applications.
b) What is diallele cross? Give its significance in plant breeding
c) What is quantitative genetics? Describe its role in crop improvement

Q.4　　Write short notes on **ANY THREE** of the following　　　　**(12)**
    a)　ANOVA
    b)　Chi square test
    c)　t - test
    d)　Sampling methods

Q.5　　Answer **ANY THREE**　　　　**(12)**
    a)　How a vendor is validated?
    b)　What are quality assurance rules related to purchase and transport.
    c)　What is in process quality control?
    d)　Types of approvals from FDA

Q.6　　Write a note on **ANY TWO**　　　　**(12)**
    a)　Validation and types of validation.
    b)　DQ, IQ, OQ, PQ
    c)　Clinical studies.

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