SUBJECT: - BIOMETRICS, BIOSTATISICS & QUALITY CONTROL

Day: Monday
Time: 29/10/2018

W-2018-1200

Date: 10.00 AM TO 01.00 PM
Max Marks: 80

N: B:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Both sections should be written in **SEPARATE** Answer sheet.

SECTION-I

Q.1 **A)** Answer the following (**ANY ONE**)   (06)

   a) Discuss the role of quantitative genetics in crop improvement.
   b) What is diallele cross? Give its significance in plant breeding.

B) Answer **ANY ONE** of the following: (10)

   a) Discuss the concept correlation and linear regression.

OR

   a) Match the following:

Column A	Column B
i) t- test	a) Used in ANOVA
ii) Genotypic value	b) Used for comparison of means
iii) F- test	c) Is function of genotypic and environmental
iv) Path analysis	d) Phenotypic & environmental values
v) Chi- sq test	e) Eberheart and Russel Model
vi) Heritability	f)Phenotypic Variable
vii) Stability	g)Testing dependency in contingency tables
viii) Economic trait	h) Probability of Error in testing
ix) Level of Significance	i) Used to determine direct and indirect effects

Q.2 Define the terms: (16)

   a) Shuttle Breeding
   b) Population Genetics
   c) Coadaption
   d) Heterosis
   e) Partial Corelation
   f) Degree of Corelation
   g) Polygon
   h) Median

SECTION-II

Q.3 **A)** Answer (**ANY ONE**) of the following: **(06)**

a) Find the correlation coefficient, regression , coefficient(slope) and intercept.

X= Temp	21	22	23	24	25	26	27
Y= Humidity	65	66	67	69	71	72	73

Use the results to conclude that humidity and temperature are inversely related. Find the predicted value of Humidly at temperature= 28.

OR

a) Write about different charts used to represent data. Give 3 examples.

B) Answer **ANY ONE** of the following: **(10)**

a) Give an account on Scatter diagram.
b) What is Exponential growth curve? Give its significance.
c) Give a brief account on heterosis.

Q.4 **A)** Answer **ANY ONE** of the following **(08)**

a) Discuss various methods of sampling with examples.

OR

a) Discuss layout and process of randomization in Randomized Block design.

B) Answer **ANY TWO** of the following **(08)**

a) What care is required to be taken in case of handling and storage of packaging materials?
b) What is meant by systems approach in bioprocess industry?
c) Describe process of vendor validation.

Q.5 Write short notes on **ANY FOUR** of the following: **(16)**

a) Air handling system in Bioprocess industry
b) Equipment cleaning validation
c) Personnel Validation
d) DQ, IQ, OQ, PQ
e) Pest control in a biopharmaceutical process industry

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