

SUBJECT: - BIOMETRICS, BIOSTATISTICS & 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 Humidity 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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