

U.G. 6th Semester Examination-2021
Molecular Biology & Biotechnology
[HONOURS]

Discipline Specific Elective (DSE)
Course Code : MBBT-H-604-T-DSE-3
(Biostatistics)

Full Marks : 40

Time : 2½ Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **five** questions: 2×5=10
- a) Differentiate Leptokurtic curve from and Platykurtic curve.
 - b) Define the nature of skewed curve when the sum of frequencies are equal on both sides.
 - c) Define the Law of Addition of Probability.
 - d) What is the difference between an experiment and a chance event?
 - e) What is Law of Large Numbers?
 - f) What is the difference between Primary and Secondary data?

- g) State the importance of Standard deviation and Standard error.
 - h) Define the importance of Poisson distribution in an experiment.
2. Answer any **two** of the following: 5×2=10
- a) What are the features of Poisson distribution? Why it is distribution of rare events? 4+1
 - b) What is the difference between Ordinal and Interval data? What is Ratio data and its importance? 2+3
 - c) Explain the merits and demerits of Median. 5
 - d) What are primary and secondary data? Explain with examples. What is Bimodal frequency distribution? 3+2
3. Answer any **two** questions: 10×2=20
- a) In a practical class seeds of *Nigella* are given to test Goodness of fit as : 18 Black and 22 Brown seeds. Comment on the nature of inheritance of the trait seed coat color. (The table value of Chi square at 5% level of significance and 1 DF is 3.84) 10
 - b) A tall homozygous Pea plant (TT) with yellow pods(Y_Y) was crossed with a dwarf(tt) plant

with green pods(yy). After selfing between F1 the F2 developed as : Tall Yellow - 120; Tall Green - 10; Dwarf yellow - 10; Dwarf green - 20. Comment on the assortment of T and Y genes. (The table value of Chi square at 5% level of significance and 3DF is 7.8). 10

- c) Seed yield (gm) of two plant types (control - A and mutant -B) of *Nigella* has been given:

A - 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4 2.5, 2.6, 2.6

B - 2.3, 2.4, 2.5, 2.5, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2

Test whether mean seed yield of two types is significant or not. (The table value of t at 5% level of significance and 18DF is 2.10). 10

- d) Four rice varieties (A, B, C, D) grown in 0-4 replications and their yield/plot assessed in gm as: A- 5,6,5,7. B- 2,4,2,3 C- 10,12,11,12 and D-10,9,9,8. Do you consider that the mean yield of varieties differ themselves? (The table value of F at 5% level of significance is 3.9)

10
