2024

B.A./B.Sc.

Sixth Semester

DISCIPLINE SPECIFIC ELECTIVE – 4

BOTANY

Course Code: BOD 6.21

(Biostatistics)

Total Mark: 70 *Pass Mark: 28*

Time: 3 hours

Answer five *questions, taking* one *from each unit.*

UNIT–I

1. Distinguish between descriptive and inferential statistics. Explain the functions of statistics in various spheres of life. 5+9=14

2. How do categorical variables differ from numerical variables? Give an account on variables, citing suitable examples. 5+9=14

UNIT–II

3. Discuss how does observational research differ from experimental research. Explain the various stages of data analysis. 5+9=14

4. What are samples and why are they important in biological research? Give a comprehensive account on sampling methods in biological researche. 5+9=14

UNIT–III

5. What do you understand by standard deviation? Calculate standard deviation of the following data set. 4+10=14

Items	5	15	25	35
Frequency	2	1	1	3

6. Describe central tendency. Explain the relationship among mean, median and mode if the distributions are symmetrical, positively skewed and negatively skewed. 4+10=14

UNIT–IV

7. Distinguish between mutually exclusive and non-mutually exclusive events in probability statistics, citing examples. If one card is drawn randomly from a regular pack of cards, what is the probability that is is either an ace or a spade? 5+9=14

8. Explain conditional probability with example. A jar contains 30 marbles of which 20 are red and 10 are blue. If two marbles drawn one after the other without replacement, what is the probability that both of them are red? Calculate it. 5+9=14

UNIT–V

9. What is null hypothesis? Under what condition would you reject or accept it? Compare and contrast the various types of t-tests and their applications. 2+3+9=14

10. What is chi square test of independence and what type of data is it performed on? The normal content of proteins in three pulse varieties *A*, *B* and *C* are 60%, 28% and 12% respectively. Supposing you have conducted an independent research and quantified the amount of protein in these crop varieties as: $A = 73$, $B = 38$ and $C = 18$. Determine whether your finding supports the normal protein content. (Given $x^2 = 5.99$ at 0.05 significance level) 2+3+9=14