R-6

91547

B.Sc. 2nd Semester New Scheme Examination,

May–2017

BIOTECHNOLOGY

Paper–BT–201

Biostatistics

Time allowed : 3 hours] *[Maximum marks : 40*

Note : *Attempt five questions in all.* ***Question No. 1 is compulsory*** *and the students must attempt one question from each unit.*

1. Compulsory Question : 10

   (i) Explain standard deviation.

   (ii) Define Combination and Permutation. Evaluate P(8, 3) and C(8, 3).

   (iii) Define Poisson distribution.

   (iv) Sampling.

   (v) Find the derivatives of :

   (a) $3x^3$ (b) $4/x$

Unit–I

2. (a) What do you understand by the transpose of a matrix ? Explain by giving suitable example. 4

   (b) A group of 7 students working on a project needs to choose 2 students to present groups report. How many ways they can choose two students ? 3½

3. (a) Prove the following trigonometric identities : 4

(i) $\sin x - \sin x \cos^2 x = \sin^3 x$

(ii) $\frac{1-\sin x}{\cos x} = \frac{\cos x}{1+\sin x}$

(b) Explain the Binomial theorem of integer. 3½

Unit–II

4. (a) Differentiate the following function with respect to x : 5

$$x^5 + \frac{4}{x^2} - \frac{2}{3}\sin x + 7\log_e x + 6e$$

(b) Write down the applications of integration. 2½

5. (a) Discuss the significance and applications of trigonometric functions. 4

(b) Evaluate : $\int \frac{(x+1)^2}{\sqrt{x}}\,dx$ 3½

Unit–III

6. (a) Write short note on types and collection of statistical data. 4

(b) The arithmetic mean of the following distribution is 17 years. Find the missing frequency. 3½

Age (years)	8	20	26	29
No. of persons	3	2	?	1

7. (a) What is probability and its basic laws ? 4

(b) Calculate the standard deviation of the following data : 3½

x	10	11	12	13	14	15	16	17	18
f	2	7	10	12	15	11	10	6	3

Unit–IV

8. (a) Explain principle of ANOVA. 4

(b) Write short note on t-test. 3½

9. Write notes on the following :

(a) Chi-sqaure test 4

(b) Testing of hypothesis 3½