

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BENGALURU – 27  
B.Sc. ENVIRONMENTAL SCIENCE – III SEMESTER  
SEMESTER EXAMINATION: OCTOBER 2019

**ES – 318: ENV. MICROBIOLOGY, ENV. BIOTECHNOLOGY AND BIostatISTICS**

TIME: 2½ HOURS

MAX MARKS: 70

This question paper comprises of 3 parts and two printed pages

Instruction: Draw diagrams wherever necessary

**PART – A**

Answer any ten of the following

10X2 = 20

1. What are environmental determinants?
2. Define environmental biotechnology.
3. What are hyperthermophiles? Give an example.
4. Mention any two air borne viral infections.
5. What is rhizosphere effect?
6. What is a biofilm?
7. Differentiate univariate and bivariate data.
8. Mention the scales of measurement of statistical data.
9. What is a mode? What is a bimodal data?
10. Differentiate sampling error and non-sampling error.
11. Differentiate Type I error and Type II error.
12. Define Chi-square test. Mention one of its significance.

**PART – B**

Write explanatory notes on any four of the following

4X5 = 20

13. Sick building syndrome
14. Bioleaching of Uranium
15. *In-situ* bioremediation of an oil slick
16. Scattered diagrams
17. Construct a Pie chart using the data given below.

Soil texture	Silt Loam	Loam	Clay	Sand
Water holding capacity (%)	40	30	20	10

18. Compute Standard Deviation of the given data and interpret the result.

Haemoglobin level of eight men (g/dl): 11, 12,13,14,15,16,17,18

**PART – C**

**Answer all the questions**

**3X10 = 30**

19. Present Bradley's classification of water related infections.

**OR**

Write the principle and uses of any three biosensors.

20. Discuss the *in-situ* bioremediation of a contaminated land.

**OR**

Give an account of transgenic plants with special reference to Bt Cotton.

21. Calculate Karl Pearson's correlation from the given data.

Temperature °C	40	35	30	25	20
%RH	45	55	65	75	85

**OR**

Ten male babies were given mother's milk and ten male babies were given dairy milk. After one year the weight gain was noted in Kgs. Conclude if the weight gain is statistically significant.

**(Hypothetical value of 't' at df 18 on p= 0.05 level = 2.1).**

Breast fed babies	2	3	4	5	6	2	4	6	5	3
Dairy milk fed babies	1	2	3	2	3	2	2	3	1	1