ST. JOSEPH'S COLLEGE (AUTONOMOUS), BENGALURU-27
B.Sc. ENVIRONMENTAL SCIENCE III-SEMESTER
SEMESTER EXAMINATION: NOVEMBER 2020
ES 318: ENVIRONMENTAL MICROBIOLOGY, ENVIRONMENTAL BIOTECHNOLOGY AND BIOSTATISTICS

Time: 2½ Hours   Max. Marks: 70

This question paper contains two printed pages and three parts.
Instruction: Draw diagrams wherever necessary.

PART- A

Answer any <u>ten</u> of the following.   10×2=20

1. Define environmental microbiology.
2. Differentiate between acidophilic and alkalophilic bacteria.
3. What are extremophiles? Give an example.
4. What is a droplet infection? Give an example.
5. What is water washed disease? Give an example.
6. What is microtox assay?
7. What is rhizosphere?
8. What is bio venting?
9. Define biostatistics.
10. What is bivariate data?
11. Mention the four scales used to represent statistical data.
12. What is a sampling error?

PART- B

Write explanatory notes on any <u>four</u> of the following.   4×5=20

13. Nitrogen cycle
14. Water borne diseases by faecal oral route
15. Bt toxins and pest control
16. Scatter Diagram

17. In a mass screening of COVID -19 of 300 people in a village, 150 were found to be negative, 75 were symptomatic positive and 75 were asymptomatic positive. Construct Pie chart.

18. Compute the standard deviation of the following data.

Length of seedlings(cm)	5.2	5.5	5.7	5.9	6.2	6.5	7.0

PART- C

Answer all questions.   3×10=30

19. Discuss the significance of temperature on bacterial growth.

OR

With the help of a case study, explain the bioremediation of a contaminated aquifer.

20. Explain the stages of biodegradation of DDT in soil.

OR

Give an account of random sampling methods in biostatistics.

21. Calculate the Karl Pearson Correlation coefficient for the following data.

% Albedo	10	20	30	40	50	60	70	80	90
%Absorption	90	80	70	60	50	40	30	20	10

OR

The following data was obtained by a Pisciculturist while evaluating the effect of NutriRich on body weight of control and experimental fish. Apply 't' test to find out any significant influence of nutrient on the body weight (grams) of experimental fish. The table value of 't' at d.f 18 on 5% level is 2.101.

Control	42	47	52	55	45	44	43	50	52	50
Experimental	61	63	58	59	55	64	62	58	60	65