E – 5108

Reg. No. : .....

Name : .....

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Second Semester M.Sc. Degree Examination, October 2018
Branch : Environmental Sciences
ES 222 : ENVIRONMENTAL TECHNIQUES
(2013 Admn. Onwards)

Time : 3 Hours

Max. Marks : 75

I. Answer **any ten** of the following : **(10×2=20 Marks)**

1) What do you mean by coefficient of variation ?
2) Differentiate between geometric mean and harmonic mean.
3) What is ICP MES ? What are its uses ?
4) Differentiate CRD and RBD.
5) What is the principle of electrophoresis ?
6) What is meant by pour plate technique of microbial enumeration ?
7) Name the tests performed to assess the water quality.
8) How are computer applications useful in environmental research ?
9) What do you mean by BOD_5 ?
10) Define sampling efficiency.
11) What do you mean by composite sampling ?
12) What is an F test ?

II. Answer **any five** of the following : **(5×5=25 Marks)**

13) Explain in detail the difference between any two statistical tools used in analysis of field experiments.
14) Write short notes on DNA microarray technique.
15) Describe the methodology used for estimating available P and P of a soil sample with principle.

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16) Describe the latin square design of statistical analysis

17) Explain the spread plate technique of microbial enumeration.

18) Describe Spectrophotometry in detail and throw light on its merits and demerits.

19) Define pH and EC. Explain the principle, sample preparation and determination of pH and EC of both water and soil samples.

III. Answer **any two** of the following : **(2×15=30 Marks)**

20) Mention a few pollution parameters. What are the assessment methodologies employed for determining the parameters in a laboratory.

21) Describe the common enumeration technique used for bacteria, fungi and actinomycetes with respective media composition and dilution techniques.

22) How are water samples drawn from an aquatic ecosystem ? Explain the preparation and preservation techniques used in detail for estimation of various elements.