

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FOURTH SEMESTER EXAMINATION, JUNE 2022

SECOND YEAR [BATCH 2020-23]

MICROBIOLOGY (HONOURS)

Paper : IX [CC9]

Date : 23/06/2022

Time : 11 am – 1 pm

Full Marks : 50

Answer **any ten** questions of the following:

[10×2]

1. a) What are 'coliforms'? Explain with example.
b) Name at least four species of pathogenic organisms which may be present in polluted water.
c) Mention the advantages and disadvantages of waste compaction during solid waste management.
d) What are the differences between 'dumping' and 'landfilling'?
e) Why isn't the routine bacteriological examination of water directed toward isolation and identification of specific pathogens?
f) What do you mean by diseased plant?
g) What are the features of class IV R proteins?
h) Write down the methods of disease escape.
i) Discuss any two pre-existing chemical defense in plants.
j) How bio-fertilizers are better than chemical fertilizers?
k) What is water activity? How is it related to microbial activity in soil?
l) What is rhizospheric effect?
m) With suitable example define synergism.
n) State the importance of soil organic matter (SOM).

Answer **any three** questions of the following:

[3×10]

2. a) What advantages does the membrane filter technique offer for microbiological analysis of water?
b) What is 'compost'? Mention the advantages and drawbacks of using composts.
c) Describe how selective and differential media facilitate the bacteriological analysis of water sample. [3+4+3]
3. a) Outline the process by which a municipality produces potable water.
b) Differentiate between 'trench and area' methods of landfilling.
c) What is the significance of finding *Streptococcus faecalis* in water? What are fecal streptococci? [4+3+3]
4. a) What do you mean by hemibiotroph? Give an example.
b) What is the difference between sign and symptom of disease?
c) Discuss the factors on which severity of disease depend.
d) How does germ tube help in disease development? [2+2+3+3]
5. a) What is the difference between monocyclic and polycyclic pathogen?
b) Do you agree that quantitative resistance is partial?
c) What role does elicitor molecules play in disease development?
d) Healthy plant is a community of cells built in a fortress-like fashion – justify. [2+3+3+2]
6. a) What is humus?
b) What are the specific adaptations are incorporated in thermophilic and psychrophilic microorganisms?
c) State some advantages and disadvantages of biofertilizers.
d) Write short note on mycorrhiza. [1+3+3+3]

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