



WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 2nd Semester Examination, 2021

MCBACOR04T-MICROBIOLOGY (CC4)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

Answer Question No. 1 and any *four* questions from the rest

1. Answer any *four* questions from the following: 2×4 = 8
 - (a) What are the advantages of COD over BOD to indicate the water pollution level?
 - (b) Define amensalism with proper example.
 - (c) What do you mean by phosphate solubilization? Give two examples of phosphate solubilizing bacteria.
 - (d) What do you mean by pre- and post-chlorination?
 - (e) What do you mean by soil profile? Draw the soil profile of terrestrial environment.
 - (f) Why denitrification is unwanted to farmers?
 - (g) Why xenobiotics are called recalcitrant?
 - (h) How would you define the relationship between algal and fungal members in a lichen?

2. (a) What do you mean by tertiary treatment of water? 2+3+3
 - (b) How an aerobic waterway becomes anaerobic after addition of wastes? Explain diagrammatically.
 - (c) Diagrammatically explain the way of wastewater through activated sludge process.

3. (a) What is acid rain? 2+3+3
 - (b) How microbial degradation of lignin occurs? Explain with proper example.
 - (c) What do you mean by phosphate immobilization? Explain with proper example.

4. (a) Why safety is concerned regarding drinking water? 2+(3+1)+2
 - (b) How MPN test is performed? What is its utility?
 - (c) Why UV treatment is present in most of the domestic water purification kit?

5. (a) What do you mean by microbiomics? $1\frac{1}{2} + 2\frac{1}{2} + 4$
 (b) How microbes thrive in low temperature? Explain with proper example.
 (c) Write a comparative note on freshwater and marine microflora.
6. (a) Write a comparative note between mutualism and commensalism with proper example. 3+3+2
 (b) Differentiate epiphytes and endophytes with proper example.
 (c) Define endomycorrhiza with proper example.
7. (a) What are the strategies of pesticide remediation? 2+(2+2)+2
 (b) What are organochlorine pesticides? Give two examples of bacterial genera those degrade organochlorine pesticides.
 (c) Define phytoremediation with proper example.
8. (a) What do you mean by sulfate reduction? Explain with proper reaction and example. 3+3+2
 (b) What do you mean by symbiotic and non-symbiotic interactions between microbes-plants?
 (c) Mention four microflora of ruminants.
9. (a) What do you mean by rhizosphere microflora? What is rhizospheric effect? (2+1)+3+(1+1)
 (b) What are the differences between confirmatory and completed tests for the potability of water?
 (c) Give one example of each of nematophagous fungi and symbiotic luminescent bacterium.

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

—x—