



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours 2nd Semester Examination, 2020

**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.*

**Question No. 1 is compulsory and answer any *four* questions from the rest**

1. Answer any *four* questions from the following: 2×4 = 8
  - (a) What is the MPN test? What is its utility?
  - (b) Define amensalism with proper example.
  - (c) How do microorganisms solubilize rock phosphate in soil?
  - (d) Will addition of organic matter to a water sample increase or decrease its B.O.D.?
  - (e) What is alternative nitrogenase?
  - (f) Mention the characteristics of indicator organisms.
  - (g) What do you mean by biosurfactant? Give example.
  
2. (a) What do you mean by halophiles? Give example. 2+1
  - (b) Mention some adaptations of halophiles. 3
  - (c) What do you mean by microbial succession? 2
  
3. (a) Mention the significance of phosphate solubilization in bio-geochemical cycle. 2+1  
Give example of microorganisms that carry out this process.
  - (b) Describe S cycle, mentioning microorganisms involve in each step. 3+2
  
4. (a) Write short notes on: 2½+2½
  - (i) Activated sludge process
  - (ii) Trickling filter
  - (b) Mention some advantages and disadvantages of sanitary land fill. 2
  - (c) What is e-waste? 1
  
5. (a) What is the process called that result in  $\text{NO}_3^- \rightarrow \text{N}_2$ ? Give two examples of bacteria that perform this process microbiologically. 1+1

- (b) What are epiphytes? How do they differ from endophytes?  $1\frac{1}{2} + 1\frac{1}{2}$
- (c) What is an indicator organism and what properties should it has? 1+1
- (d) What is leghaemoglobin? 1
6. (a) What do you mean by completed test in the standard qualitative procedure for water? 2
- (b) What do you mean by human microbiome? Define extremophile with proper example. 2+2
- (c) What are rumen bacteria and give example? 2
7. Write short notes on:  $2 \times 4 = 8$
- (a) Nitrogen fixation
- (b) Coliforms
- (c) Rumen microorganisms
- (d) Beneficial role of microbes in human body
8. (a) What is synergism? Give example. 2+1
- (b) Mention the various mechanisms by which predaceous fungi capture their prey. 3
- (c) Why does the association between Rhizobium and leguminous plants consider as symbiotic? 2

**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.*

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