



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Major 1st Semester Examination, 2023-24

**MCBDSC101T-MICROBIOLOGY (MAJOR)**

Time Allotted: 2 Hours

Full Marks: 50

*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 Number 1 and any four questions from the rest**

1. Answer any **five** questions: 2×5 = 10
- Mention the limitations of Koch's postulates.
  - Mention the importance of 16S rRNA homology study in bacterial Taxonomy.
  - State two diseases caused by prions.
  - What is parasexuality observed in fungi?
  - What are aflatoxins? Name one producer organism.
  - Name the source of agar agar. What is agar used for?
  - State the contribution of S. Winogradsky.
  - What do you mean by theory of spontaneous generation? Who finally disprove it?
2. (a) Mention the contribution of Robert Koch and M. Beijerinck in Microbiology. (2+2)+2+2+2
- What is germ theory of disease?
  - Who discovered penicillin and streptomycin?
  - What do you mean by Winogradsky column?
3. (a) What is the basis of taxonomic classification? 2+2+2+2+2
- Mention the similarities between archaeobacteria and eubacteria.
  - Name the type of phospholipids present in the cytoplasmic membrane of the archaeobacteria.
  - State the differences between viruses and viroids.
  - Define the term species and strain of bacteria.
4. (a) List various pigments and reserve food that are found in different groups of algae. (2+2)+2+4
- What is tinsel and whiplash flagella?
  - Describe diplobiontic life cycle of algae with proper diagram.

5. (a) What is prion? Name two diseases caused by it. (2+2)+2+4  
(b) Why viruses are not affected by antibiotics?  
(c) Mention the economic importance of algae.
6. (a) What are the salient features of Three domain classification? 3+3+4  
(b) What were the criteria for Whittaker's five kingdom classification?  
(c) Discuss about the merits and demerits of five kingdom classification.
7. (a) Mention the locomotor organelle of *Amoeba*, *Paramoecium* and *Giardia*. 3+4+3  
(b) Briefly discuss the reproduction of protozoa with proper example.  
(c) Differentiate the cellular structure between *Amoeba* and *Paramoecium*.
8. (a) What is mycotoxin? 2+2+2+2+2  
(b) Mention the function of contractile vacuole in protozoa.  
(c) Mention the causative agent of Malignant malaria and Kala-azar.  
(d) Differentiate between amastigote and promastigote of *Leishmania*.  
(e) What is pyrenoid granule?
9. (a) Name and describe different spores formed in asexual reproduction of fungi. 3+2+3+2  
(b) What are the two different forms of *Leishmania*? What is leptomonad form?  
(c) State the importance of pseudopodia and food vacuole in *Amoeba proteus*.  
(d) Mention the mode of transmission of *Giardia* sp.

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