



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 1st Semester Examination, 2020, held in 2021

MCBACOR01T-MICROBIOLOGY (CC1)

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.*

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

1. Answer any *four* questions from the following: 2×4 = 8
- (i) What are the differences between biogenesis and abiogenesis?
 - (ii) What are prions? Give two examples.
 - (iii) Which period is considered as the “golden era” of microbiology?
 - (iv) What are the contributions of Alexander Fleming in the field of microbiology?
 - (v) Define systematics and taxonomy.
 - (vi) Why are 16S rRNA homology studies essential for the prokaryotes?
 - (vii) What are the main differences between algae and fungi?
2. (a) What are the differences between bright field microscopy and fluorescent microscopy? 3
- (b) Write down the Abbe equation. 2
- (c) Calculate the resolving power of a lens if the wavelength of light is 600nm and the maximum half angle of the cone of light entering the lens is 30° and the refractive index of the medium is 1.52. 2
- (d) Which type of microscope is used to observe alive microorganisms? 1
3. (a) What is Winogradsky’s column? 2
- (b) How can you experimentally disprove the theory of abiogenesis? Explain diagrammatically. 4
- (c) What do you mean by “Germ theory of disease”? 2
4. (a) What are the drawbacks of Whittaker’s five kingdom classification? 2
- (b) What are the recent approaches towards polyphasic taxonomy? 3
- (c) What do you mean by signature protein sequences? 2
- (d) Define serovar with an example. 1

5. (a) What are viroids? 2
(b) Differentiate between eubacteria and archaebacteria. 3
(c) Write a short note on the economic importance of fungi. 3
6. (a) What are the differences between strain and species? 2
(b) Explain the three domain system of biological classification proposed by Carl Woese. 2
(c) What is eye spot of algae? 2
(d) What is dimorphism in fungi? Give an example. 2
7. (a) As per your knowledge what are the drawbacks of Koch's postulates? 2
(b) What are the contributions of Louis Pasteur in the field of microbiology? 2
(c) What are the differences between conventional and molecular taxonomy? 2
(d) Why viruses are called 'acellular'? 2
8. (a) Define numerical aperture and resolving power of a lens. Explain numerical aperture with a proper diagram. 3
(b) What are the differences between SEM and TEM? 3
(c) Define the following terms: 1+1
(i) Genome
(ii) Proteome.

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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