



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 5th Semester Examination, 2021-22

MCBADSE01T-MICROBIOLOGY (DSE1/2)

ADVANCES IN MICROBIOLOGY

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 an operational taxonomic unit (OTU)?
 - (b) What is meant by annotation of genome sequence?
 - (c) What is metagenomics?
 - (d) What is polyphasic taxonomy?
 - (e) What is CpG Island?
 - (f) What is ddNTP?
 - (g) Why microorganisms are often considered as “unculturable microorganism”?

2. (a) Why microorganisms use to live in nature in community form? Discuss with some examples. 4
(b) Briefly describe the following mechanisms of horizontal gene transfer in bacteria: 2+2
 - (i) Generalized transduction
 - (ii) Specialized transduction.

3. (a) Describe R-plasmids and their significance. 2+1
(b) What is biotype? 1
(c) What do you understand by shotgun sequencing? 2
(d) What is chain termination method? 2

4. (a) What is species richness? Describe with example. 2+1
(b) What is the difference between habitat and niche? 2
(c) Why metagenomic study becomes so popular and essential in the environmental ecology domain? 3

5. (a) How microorganism communicate in a biofilm? 2
(b) How microorganism in biofilm shows drug resistance? 3
(c) Describe the steps in formation of biofilms. 3
6. Answer any *four*: 2×4 =8
(a) Synthetic biology
(b) Phage typing
(c) Pleomorphic bacteria
(d) Siderophore
(e) Enveloped virus
(f) Biological database.
7. (a) Differentiate between genomics and proteomics. 3
(b) What is Quorum Sensing? 2
(c) Explain the effect of Quorum sensing in various biological properties. 3
8. (a) Why 16S rRNA sequencing is used to identify a bacteria? 3
(b) What are the popular tools used in proteomics study? 3
(c) Describe the application of proteomics studies. 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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