



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

**MLBGDSE02T-MOLECULAR BIOLOGY (DSE1)**

**GENERAL 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.*

1. Answer any **ten** questions from the following: 1×10 = 10
- (a) Answer the following questions in brief:
- (i) The wonder drug of second world war was produced from  
(A) Algae (B) Fungi (C) Bacteria (D) Plant
- (ii) The shape of Vibrio cholera  
(A) Bacilli (B) Coccus (C) Comma (D) Spiral
- (iii) The pigment present in red algae  
(A) Rhodochrome (B) Chlorophyll  
(C) Fucoxanthin (D) Chlorophyll and Phycobilin
- (iv) The primary stain is used in Gram staining  
(A) Iodine (B) Saffranin  
(C) Crystal violet (D) Carbol fuchsin
- (v) The filter paper/membrane used to filter out bacteria from any solution should have a pore size of at least  
(A) 1.0 mm (B) 1.0  $\mu\text{m}$  to 5 $\mu\text{m}$  (C)  $\leq 0.2 \mu\text{m}$  (D)  $\geq 0.8 \mu\text{m}$
- (vi) The bacterial cell multiplication is usually by  
(A) Mitosis (B) Meiosis (C) Binary fission (D) Conjugation
- (vii) Sexual reproduction of algae is carried by  
(A) Isogamy (B) Anisogamy (C) Oogamy (D) All of these
- (viii) Mycobacteria are stained with  
(A) Gram staining (B) Negative staining  
(C) Ziehl – Neelsen’s staining (D) None of these

- (ix) The molds obtained nutrition from  
(A) Saphrophytes (B) Parasites (C) Commensals (D) All of these
- (x) The structure inside which ascospores are present is called  
(A) Asci (B) Thallus (C) Hyphae (D) Gill
- (b) Write true/false against the following statements with proper scientific logic.
- (i) The puromycin inhibits cell wall biosynthesis.
- (ii) Chitin is the principal carbohydrate in bacterial cell wall.
- (iii) The exponential growth phase in bacterial growth curve is called Lag phase.
- (iv) Bacterial sporulation is a classic example of Sigma switching.
- (v) Air can be made free from bacterial contamination by filtration.

2. Answer any *ten* questions from the following:

2×10 = 20

- (a) Define phenol co-efficient.
- (b) Why moist heat is better than dry heat during sterilization?
- (c) What is facultative anaerobe?
- (d) Why is Mycoplasma pneumonia resistant to penicillin?
- (e) What does  $\gamma$  radiation produce to kill microbes?
- (f) Differentiate between spore and conidia.
- (g) Name two uses of algae as food source.
- (h) What are hyphae and mycelium?
- (i) Write the names of broadly classified divisions of fungi.
- (j) Name one antiseptic and one disinfectant.
- (k) What are the functions of transpeptidases in the cell wall?
- (l) What is binary fission?
- (m) What is sporangium? How is it different from columella?
- (n) Name the mordant and counter stain in Gram staining.
- (o) What is the difference between bacteriostatic and bactericidal agents?

3. Answer any *two* questions from the following:

5×2 = 10

- (a) Explain the general characteristics and significance of Algae. 5
- (b) Explain the causes of antibiotic resistance in microbes. 5
- (c) What are the factors of bacterial growth? Which phase of growth will continue to occur if continuously fresh nutrients are supplied to the growing bacterial cells? 3+2
- (d) Explain in detail: the bacterial reproduction. 5

**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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