KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(3 Pages) **Reg. No:……**

Question Code: 26E01601 **Course Code: 25PMMB11**

PG Degree - End Semester Examinations, April 2026

First Semester

M.Sc., MICROBIOLOGY

General Microbiology and Microbial Diversity

(For those who joined in June 2025 onwards)

Time : 3Hours **Maximum : 75 Marks**

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer :

CO:5 K:1 1. The organisms which can use reduced inorganic compounds as electron donor are known as

(a) Chemotrophs (b) Organotrophs

(c) Lithotrophs (d) Phototrophs

CO:4 K:1 2. Which of the following is a trace element?

(a) Potassium ion (b) Sodium ion

(c) Copper ion (d) Mg ion

CO:4 K:1 3. Continuous culture is a _____ culture system.

(a) Open (b) Closed

(c) Isolated (d) Semi closed

CO:4 K:1 4. Which growth phase is usually longer in continuous culture?

(a) Log (b) Exponential

(c) Death (d) Stationary

CO:4 K:1 5. In which part of mitochondria, the ionic gradient drives the ATP synthesis?

(a) Matrix (b) Outer membrane

(c) Inner membrane (d) DNA

CO:4 K:1 6. Glycolysis is a ____ process and TCA cycle is a ____ process.

(a) Aerobic, Anaerobic (b) Anaerobic, aerobic

(c) Aerobic, aerobic (d) Oxidation, reduction

CO:4 K:1 7. Which of the following act as a precursor for the activation of peptidoglycan?

(a) Tp (b) UDP

(c) NADPH (d) GTP

CO:4 K:1 8. Which of the following is an important precursor in the purine pathway?

(a) Glycine (b) Asparate

(c) Glutamine (d) Leucine

CO:3 K:1 9. In which photosynthetic pigment, methyl group predominantly present?

(a) Chlorophyll b (b) Chlorophyll a

(c) Carotenoids (d) Xanthophylls

CO:3 K:1 10. What is the final product of the calvin cycle?

(a) Sedoheptulose (b) Erythrose

(c) Glucose (d) Ribose

PART – B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

CO:1 K:2 11. (a) Survey the history and scope of microbiology.

(OR)

(b) Identify the applications of microbiology.

CO:2 K:3 12. (a) Construct a chart for safety in microbiological laboratory.

(OR)

(b) Examine the methods of cultivating anaerobic organism.

CO:3 K:2 13. (a) Identify the economic importance of algae.

(OR)

(b) Examine the life cycle of Volvox.

CO:4 K:2 14. (a) Construct the bacterial structure with sketch.

(OR)

(b) Examine the factors affecting microbial growth.

CO:5 K:4 15. (a) Distinguish the alkaliphiles from acidophiles.

(OR)

(b) Classify the thermophiles.

PART – C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 600 words.

CO:1 16. (a) Distinguish the SEM from TEM.

K:4

(OR)

(b) Explain the principle and applications of microscopy.

CO:2 17. (a) Appraise the pure culture techniques.

K:3

(OR)

(b) Survey the staining methods of microbes.

CO:3 18. (a) Explain the life cycle of *Sargassum.*

K:2

(OR)

(b) Elaborate the steps involved in the isolation of algae from soil.

CO:4 19. (a) Explain the biosynthesis of bacterial cell wall.

K:3

(OR)

(b) Survey the classification and economic importance of fungi.

CO:5 20. (a) Explain the cell wall and membranes in acidophiles.

K:3

(OR)

(b) Analyze the importance and applications of thermophilic archaebacteria.