KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(3 Pages) **Reg. No:……**

Question Code: 26E01602 **Course Code : 25PMMB12**

PG Degree - End Semester Examinations, April 2026

First Semester

M.Sc., MICROBIOLOGY

Microbial Physiology

(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:2 K:1 1. Resolving power of a microscope is a function of _____.

(a) Wavelength of light (b) Lens system

(c) Refractive index (d) NA of lens

CO:2 K:1 2. In fluorescence microscopy, which of the following performs the functioning of removing all light except the blue light?

(a) Barrier filter (b) Blue filter

(c) Mercury are lamp (d) Exciter filter

CO:1 K:1 3. The dye eosinate of methylene blue belongs to which group?

(a) Neutral dye (b) Acidic dye

(c) Basic dye (d) Oxazine dye

CO:1 K:1 4. In Grams staining iodine is used as a _____.

(a) Fixative (b) Mordant

(c) Solubilizer (d) Dye

CO:5 K:1 5. In *chlamydomonas* the most common method of sexual reproduction is _____.

(a) Heterogamy (b) Isogamy

(c) Oogamy (d) Spore formation

CO:5 K:1 6. Which is the following is a colonial green algae?

(a) *Chlamydomonas* (b) *Chlorella*

(c) *Volvox* (d) *Spirogyra*

CO:5 K:1 7. Teichoic acid present in gram positive bacteria can bind to which ion?

(a) Fe ions (b) Phosphorous

(c) Mg ions (d) Sulphur

CO:4 K:1 8. Which component is present in the cell wall of fungi?

(a) Pectin (b) Chitin

(c) Cellulose (d) Hemicellulose

CO:2 K:1 9. Bacteria that are able to survive pasteurization temperature are called _____.

(a) Halo tolerant (b) Thermophilic

(c) Thermoduric (d) Osmophilic

CO:3 K:1 10. Anaerobic methanogens lives in the rumen of _____.

(a) Herbivore (b) Carnivore

(c) Archae (d) Scavengers

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) Classify the bacteria based on the nutrition.

(OR)

(b) Identify the uses of siderophores.

CO:2 K:3 12. (a) Construct the growth curve of microbes.

(OR)

(b) Distinguish batch and continuous cultures.

CO:3 K:2 13. (a) Examine the mechanism of ATP synthesis.

(OR)

(b) Simplify the TCA cycle.

CO:4 K:3 14. (a) Examine the biosynthesis of Tryptophan.

(OR)

(b) Construct the anaerobic respiration.

CO:5 K:1 15. (a) List the pigments involved in photosynthesis.

(OR)

(b) Survey the photosynthesis in Halobacteria.

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) Assess the nutrient transport mechanism.

K:3

(OR)

(b) Explain the nutrition and nutritional requirements for bacteria with suitable example.

CO:2 17. (a) Describe the measurement of microbial growth.

K:3

(OR)

(b) Examine the factors affecting the growth of microorganism.

CO:3 18. (a) Analyze the fermentation with reference to lactic acid.

K:4

(OR)

(b) Explain the Electron transport chain in *E. coli.*

CO:4 19. (a) Discuss the biosynthesis of peptidoglycan.

K:4

(OR)

(b) Examine the purine biosynthesis.

CO:5 20. (a) Elaborate photosynthesis in green sulphur bacteria.

K:4

(OR)

(b) Explain the Calvin-Benson cycle.