22MBU310/18MBU10

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(Third Semester)

Branch – **MICROBIOLOGY**

MICROBIAL PHYSIOLOGY & METABOLISM

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1. In passive diffusion, solute molecules cross the membrane as a result of
   i) Concentration difference ii) Pressure difference
   iii) Ionic difference iv) Temperature difference

2. The time required for cell components of the culture is known as
   i) Growth rate ii) Generation time
   iii) Continuous culture iv) Growth curve

3. How many number of net gain of ATP molecules in TCA cycle?
   i) 32 ii) 16 iii) 24 iv) 12

4. Which of the following is not the precursor for the de novo purine biosynthesis?
   i) Aspartic acid ii) Gycine iii) Glutamine iv) Arginine

5. In aerobic respiration, the terminal electron acceptor is
   i) Oxygen ii) Nitrogen iii) Hydrogen iv) Nitrate

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6. a) Bringout the group translocation.
   OR
   b) Organize the importances of siderophores.

7. a) Narrate the different phases of growth.
   OR
   b) Outline the generation time and diauxy growth.

8. a) State the bacterial photosynthesis.
   OR
   b) Apply the stages of methanogens.

9. a) Develop the synthesis of fatty acids.
   OR
   b) Organize the biosynthesis of peptidoglycan.

10. a) Explain the anaerobic respiration.
    OR
    b) Develop the propionic acid fermentation.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11. a) Classify microorganisms based on their nutritional requirements.

OR

b) Distinguish the simple and facilitated diffusion.

12. a) Differentiate the synchronous growth, batch and continuous culture.

OR

b) Assume the sporogenesis in *Bacillus* sp.

13. a) Summarize the EMP pathway.

OR

b) Infer the stages of β - oxidation process.

14. a) Elucidate account on biosynthesis of purines.

OR

b) Discuss the biosynthesis of glutamate.

15. a) Highlight the alcoholic fermentation.

OR

b) Explain the butanol fermentation.

Z-Z-Z END