

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023  
(First Semester)

Branch – APPLIED MICROBIOLOGY

**MICROBIAL BIOCHEMISTRY AND PHYSIOLOGY/MICROBIAL  
PHYSIOLOGY METABOLISM AND BIOLOGICAL CHEMISTRY**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

1. Which Growth phase is usually longer in continuous culture?  
(i) Log (ii) Exponential  
(iii) Stationary (iv) Death
2. Peroxisomes are involved in which type of reactions?  
(i) Calvin cycle (ii) Glyoxylate cycle  
(iii) Glycolate cycle (iv) Bacterial photosynthesis
3. An obligate halophile requires high  
(i) pH (ii) Temperature  
(iii) Pressure (iv) Salt
4. Which sugar is present in RNA?  
(i)  $\beta$ -D-ribose (ii)  $\beta$ -D-fructose  
(iii)  $\beta$ -D-galactose (iv)  $\beta$ -D-2-deoxyribose
5. Which of this vitamin is associated with the coenzyme Biocytin?  
(i) Nicotinic acid (ii) Thiamine  
(iii) Biotin (iv) Pyridoxine

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

6. a) Describe the Factors affecting the growth of microorganisms.  
OR  
b) Discuss the Phosphotransferase system.
7. a) Write about Oxygenic and Anoxygenic photosynthesis.  
OR  
b) Bring out the Lipid catabolism.
8. a) Give an account on Regulation by covalent modification.  
OR  
b) Describe the Heat-shock response and PH homeostasis.
9. a) Explain about the Hydrogen bonds and Van der Waals interaction.  
OR  
b) Illustrate the quaternary structure of proteins.
10. a) List out the Application of enzymes in analytical labs.  
OR  
b) Discuss the Detection and estimation of lipids.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11. a) Elucidate about the Solute transport- Primary and Secondary active transport.  
OR  
b) Give an account on biosynthesis of archeal lipids.
12. a) Write down the steps involved in tricarboxylic acid cycle.  
OR  
b) Illustrate about the anaerobic respirations.
13. a) Criticize the Patterns regulation of metabolic pathway.  
OR  
b) State about the Kinetics of non-regulatory enzyme.
14. a) Explain about the structure and functions of tRNA .  
OR  
b) Give an account structural classification of proteins.
15. a) Discuss the Structure and function of triglycerides, phospholipids and sphingolipids.  
OR  
b) Elaborate account on Abzymes assay.

Z-Z-Z

END