P. P. SAVANI UNIVERSITY

Third Semester of M.Sc. Examination

December-2021

SSMB8090-Microbial Physiology and Metabolism

09.12.2021, Thursday Time: 09:00 p.m. to 011:30 p.m. Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Make suitable assumptions and draw neat figures wherever required.
3. Use of scientific calculator is allowed.

Section-I

Q.1	**Very Short Questions (Attempt any five)**	**[10]**
1.1	Define neutrophile and acidophile microorganisms, give one example of each.	
1.2	Enlist the advantages of turbidometric growth estimates.	
1.3	How do thermophiles and hyperthermophiles survive high temperatures?	
1.4	Write the principle and uses of autoclave.	
1.5	What is the biological control of microorganisms?	
1.6	Write the use and composition of membrane filters.	
Q.2	**Write Short Notes (Attempt any two)**	**[06]**
2.1	Give a short note on filter sterilization.	
2.2	Write short note on total cell count.	
2.3	Explain in brief the sterilization gases.	
Q.3	**Detail questions (Attempt any two)**	**[14]**
3.1	Give a detailed note on the radiation as mean of sterilization.	
3.2	Explain the growth curve for microbes	
3.3	Give a detailed note on the temperature classes of microorganism.	

Section-II

Q.1 Very Short Questions (Attempt any five) **[10]**

1.1 How is energy cycled through a cell?

1.2 Enlist the enzymes that regulate the glycolysis.

1.3 Give examples of final electron acceptors in anaerobic respiration and aerobic respiration.

1.4 How enzymes change activity with alterations in temperature?

1.5 What is the first laws of thermodynamics? How the standard free energy changes differ for the exothermic reactions endothermic reactions?

1.6 Enlist the three major ways by which the flow of carbon through any pathway may be regulated.

Q.2 Write Short Notes (Attempt any two) **[06]**

2.1 Explain the ribozymes along with appropriate example.

2.2 Give a short note on anaerobic respiration.

2.3 Write a short note on metabolic Channeling

Q.3 Detail questions (Attempt any two) **[14]**

3.1 Give a detailed note on the three stages of catabolism in chemoorganoheterotrophs.

3.2 Explain the covalent modification of enzymes with appropriate example.

3.3 Write a detailed note on citric acid cycle.