

School of Biological and Life sciences**Master of Science in Microbiology
Semester End Examination - Jun 2024****Duration : 180 Minutes
Max Marks : 100****Sem II - P1PT203B - MSMB5010 - Physiology and Metabolism of Microbes**General Instructions*Answer to the specific question asked**Draw neat, labelled diagrams wherever necessary**Approved data hand books are allowed subject to verification by the Invigilator*

- 1) What is the Haber-Bosch process? K1(2)
- 2) TCA is an amphibolic pathway. Explain with examples. K2(4)
- 3) What is CFU? From a fruit juice sample, the dilution 10^{-4} is prepared. 0.1 ml of dilution is spread plated on the surface of nutrient agar plate and incubated. If, after incubation, 50 colonies are counted, what is the microbial density (CFU/ml) of the sample? K2(6)
- 4) Explain in detail the components and functioning of complex I and complex II in mitochondrial electron transport chain. K3(9)
- 5) Discuss categorization of microbes based on nutrition. K3(9)
- 6) Explain in detail the steps of Krebs cycle. K5(10)
- 7) Construct the mitochondrial electron transport chain and explain its functioning. K4(12)
- 8) a) Define saturated and unsaturated fatty acids. How is Malonyl CoA synthesised? b) Outline the biosynthesis process of phospholipids. K5(15)
- 9) Elaborate the C₃ pathway of carbon fixation and its significance. K5(15)
- 10) Discuss the process of photosynthesis in Cyanobacteria and purple bacterial. K6(18)