

**School of Biological and Life sciences****Master of Science in Biochemistry  
Semester End Examination - Jun 2024****Duration : 180 Minutes  
Max Marks : 100****Sem II - P1PP205B - Microbiology***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*

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|-----|---|--------|
| 1)  | Define (i) capsomere (ii) pathogenic potential  | K1(2)  |
| 2)  | Explain complementary base pairing rules and how it governs the stability and specificity of DNA molecules?   | K2(4)  |
| 3)  | What are the general properties of algae, protozoa.   | K2(6)  |
| 4)  | Can you explain the structure of a typical bacteriophage and how it interacts with bacterial cells during infection?  | K3(9)  |
| 5)  | Differentiate between simple and differential stains with example.  | K3(9)  |
| 6)  | Describe the process of conjugation in bacteria, including the roles of the donor cell, recipient cell, and conjugative plasmids                                      | K5(10) |
| 7)  | Demonstrate the importance of prebiotics and probiotics and synbiotics with some examples.  | K4(12) |
| 8)  | Elaborate the various mechanisms of gene transfer in bacteria and explore the applications of gene transfer mechanisms in bacterial genetics research, biotechnology. | K5(15) |
| 9)  | Apply the concepts of DNA Repair and explain base excision repair.  | K5(15) |
| 10) | Name the several types of DNA repair, describe mismatch repair (MMR), and explain why DNA repair is necessary.  | K6(18) |