

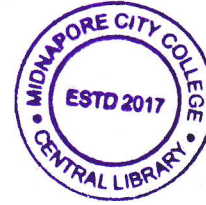
**The West Bengal University of Health Sciences**  
**M.Sc. MLT in Microbiology 2nd Year December, 2023 - January,**  
**2024 Examination**

**Subject: Molecular Microbiology and Genetics**

**Time: 3 hrs**

**Full Marks: 80**

*Attempt all questions*



1. Write in brief on the following questions :

- a) Describe the Watson-crick model of DNA with diagram. 3+2
- b) Write down the process of transcription with diagram for each stage. 3+2
- c) Define plasmid. Name a commercially available plasmid used in Recombinant DNA Technology. State the features of plasmid. 1+1+3
- d) What is horizontal gene transfer? What is F' factor? How UV light acts as a mutagen? 1+2+2
- e) Define operon. Distinguish between inducible and repressible operon. Name the components of an operon with function. 2+1+2
- f) What is Hfr Strain? How F' cells are formed? 2+3
- g) Define mutagen. Write briefly about the various types of mutagen with example. 2+3
- h) Discuss 3 different types of virus tissue culture techniques. 5

2. Answer the following questions :

- a) Define spliciosomes; state their function. Explain types of post translational modifications. 2+8
- b) Describe the process of specialized transduction with diagram. What is plasmid curing? What is sexduction? (4+3)+2+1
- c) Draw the structure of one purine and one pyrimidine base. What is plasmid compatibility? Why SOC medium is used in transformation? 3+3+2+2
- d) What is Pock assay in virology? Describe the process. What are de novo and salvage pathways of nucleic acid bio-synthesis. 2+4+2+2