

## B.Sc. Semester-5 Examination

CC 302

Bio-Chemistry

Time : 2-30 Hours]

March-2024

[Max. Marks : 70

- Instructions: 1. All Questions are compulsory and carry equal marks  
 2. Illustrate your answers with neat diagrams wherever necessary

- Q1(a) Discuss the experiment of Oswald Avery, Mc Carty and MacLeod and state its importance in molecular biology (07)  
 Q1(b) Explain: Melting curve of DNA (07)  
 OR  
 Q1(a) What is DNA super coiling? Explain and state its biological importance (06)  
 Q1(b) What is the role of Followings in replication (08)  
 1. Topoisomerase. 2. DNA pol I. 3. Helicase. 4. DNA ligase. 5. Primer  
 Q2(a) Explain: Termination of Transcription (07)  
 Q2(b) Describe Lac Operon as a model of regulation of Gene expression (07)  
 OR  
 Q2(a) Discuss: Structure and function of E. Coli RNA polymerase (07)  
 Q2(b) State seven characteristics of genetic code (07)  
 Q3(a) What is the effect of UV radiation on DNA? (06)  
 Q3(b) Define mutation and discuss the classification of mutation (08)  
 OR  
 Q3(a) Explain the mechanism of action of transposons (06)  
 Q3(b) Discuss 5 BU (5-BromoUracil) as a mutagenic agent (08)  
 Q4(a) Write a note on applications of Genetic engineering (07)  
 Q4(b) Describe the characteristics of an ideal vector (07)  
 OR  
 Q4(a) Write a note on Restriction Enzymes and give examples. (07)  
 Q4(b) Explain Southern blotting technique (07)  
 Q5 ATTAMPT ANY SEVEN (14)  
 1 Define: Hyper chromic effect  
 2 Who proved that DNA is a genetic material  
 3 Name the scientists who discovered DNA Polymerase I and DNA Polymerase III  
 4 Which are initiation and termination codons  
 5 Define : Introns and exons  
 6 Draw and label the transcription bubble  
 7 What is an intercalating agent? Give an example  
 8 What is Spliceosome  
 9 Mention two important features of Lambda phage as a vector for cloning.  
 10 Explain nomenclature of pBR322  
 11 Give two examples of post translational modification  
 12 Why single stranded DNA absorb more light at 260nm