

**Bankura University**  
**B. Sc 4<sup>th</sup> Semester (Honours) Examination, 2021**  
**Sub : Botany**

Course ID: 41311

Course Code: SHBOT/401/C-8

Course Title: **Molecular Biology**

Full Marks: 25

Time: 1h.15 min.

The figures in the margin indicate full marks

Answer all the questions.

**UNIT I**

1. Answer *any five* of the following questions: (1 x 5 =5)

- a) If a dsDNA contains 30% A, then what is the percentage of G?
- b) Name two unusual bases of tRNA.
- c) Distinguish DNA and RNA with respect to the ribose subunit.
- d) If the DNA sequence of a template strand is 5'-ATGCCGTAGTCGT-3'. What would be the sequence of RNA?
- e) What is the function of reverse transcriptase?
- f) What is replication fork?
- g) What are hn-RNAs?
- h) What is Shine Dalgarno sequence?

**UNIT II**

2. Answer *any two* of the following questions: (5 x 2=10)

- a) 'Genetic material of TMV is RNA'- Illustrate with experimental proof.
- b) Distinguish between B-DNA and Z-DNA .
- c) What are okazaki fragments? Why are they formed during replication? 2+3=5
- d) Describe in brief the process of polyadenylation of eukaryotic mRNA.

**UNIT III**

3. Answer *any one* of the following questions: (10 x 1=10)

- a) What are inducible and repressible operons? Describe the positive regulation of lac operon. 2+8=10
- b) Explain the steps involved in the transcription initiation in prokaryote . Name two protein synthesis inhibitors. 8+2=10