

**2022**  
**B.A./B.Sc.**  
**Fourth Semester**  
CORE – 8  
**BOTANY**  
*Course Code: BOC 4.11*  
(Molecular Biology)

*Total Mark: 70*  
*Time: 3 hours*

*Pass Mark: 28*

*Answer five questions, taking one from each unit.*

**UNIT-I**

1. Discuss the types of RNA and their functions. 14
2. Write notes on the following: 7×2=14
  - (a) Wobble hypothesis
  - (b) Constitutive heterochromatin

**UNIT-II**

3. Describe DNA replication in prokaryotes. 14
4. Write notes on the following: 7×2=14
  - (a) Telomerase function in eukaryotic replication
  - (b) Models of DNA replication

**UNIT-III**

5. Describe transcription in prokaryotes. 14
6. Write notes on the following: 7×2=14
  - (a) Inducible operon
  - (b) Gene silencing

#### UNIT-IV

7. Write an elaborate note on mRNA processing with suitable diagrams. 14
8. Write a detailed note on the splicing mechanism that involves the action of the spliceosome. 14

#### UNIT-V

9. Describe the initiation step in protein synthesis. Explain how fidelity of translation is maintained. 8+6=14
  10. Describe the various forms of post-translational modification. 14
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