

2023
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. Define central dogma. With the support of the genetic code table enumerate on the salient features of genetic code. 3+11=14
2. Write notes on any two of the following: 7×2=14
 - (a) CoT value
 - (b) Salient features of mitochondrial and chloroplast DNA
 - (c) Z-DNA

UNIT-II

3. List and describe the roles of various enzymes involved in eukaryotic DNA replication. 14
4. Write notes on any two of the following: 7×2=14
 - (a) Rolling circle model of DNA replication
 - (b) Role of DNA polymerase I
 - (c) Theta mode of DNA replication

UNIT-III

5. Describe the regulation of lactose metabolism and tryptophan synthesis in *E. coli*. 14
6. Write notes on any two of the following: 7×2=14
 - (a) Heat shock proteins

- (b) Role of transcriptional factors in eukaryotes
- (c) Steroids and peptide hormones

UNIT-IV

- 7. Define split genes. Elaborate on the mRNA modification in eukaryotes. 3+11=14
- 8. Write notes on any two of the following: 7×2=14
 - (a) Difference between group I and group II intron splicing mechanism
 - (b) mRNA transport
 - (c) RNA editing

UNIT-V

- 9. Describe the various post translational modifications of proteins. 14
 - 10. Write notes on any two of the following: 7×2=14
 - (a) Aminoacylation
 - (b) Inhibitors of protein synthesis
 - (c) Translation termination in prokaryotes
-