SET B

M.Sc. BOTANY
SECOND SEMESTER
MOLECULAR BIOLOGY
MSB-204

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins. **Full Marks: 35**

(Objective)

Time: 15 mins. **Marks: 10**

Choose the correct answer from the following: ***1×10=10***

1. Which of the following enzymes remove supercoiling in replicating DNA ahead of the replication fork?
   a. DNA polymerase
   b. Topoisomerases
   c. Primases
   d. Helicases

2. The second transesterification reaction occurs between.....
   a. The 3′ splicing site of intron and 5′ splice site of intron
   b. The 3′ splicing site of intron and the branch point site
   c. The 5′ splicing site of intron and 3′ end of exon
   d. The 5′ end of exon and the 3′ splice site

3. Which of the following ensure stable binding of RNA polymerase at the promoter site?
   a. DNA photolyase
   b. Sigma factor
   c. DNA glycosylase
   d. RecA

4. Name the one intrinsic terminator of transcription.
   a. Intercalating agents
   b. Rho dependent
   c. Rho independent
   d. Acridine orange

5. The first RNA processing event is.....
   a. Capping
   b. Polyadenylation
   c. Splicing
   d. Editing

6. The eukaryotic initiation codon recognizes.....
   a. f-Met-tRNA-f-Met
   b. Met-tRNAi-Met
   c. f-Met-tRNAi-Met
   d. f-Met-tRNA-Met

7. CAAT box is present in many:
   a. Prokaryotic promoters are upstream of TATA box
   b. Prokaryotic promoters are downstream of TATA box
   c. Eukaryotic promoters are upstream of TATA box
   d. Eukaryotic promoters are downstream of TATA box

8. AFLP is a:
   a. PCR based method
   b. Method to detect polymorphism in the DNA throughout the genome
   c. Method that detects the presence or absence of a fragment
   d. All of these

9. The variation in number of tandem repeats between two or more individuals is called:
   a. Variable number of tandem repeats (VNTRs)
   b. Restriction Fragment Length Polymorphism (RFLP)
   c. Simple Sequence Repeats (SSRs)
   d. Amplified Fragment Length Polymorphism (AFLP)

10. Genetic code is:
   a. The sequence of nitrogenous bases in mRNA molecule that codes for a protein
   b. Is A Triplet Code
   c. Is non-overlapping
   d. All of these

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Descriptive

Time : 1 hr. 15 mins. **Marks : 25**

[Answer question no.1 & any two (2) from the rest]

1. Write short notes on *any one*: 5
   a) Amino-acyl synthases and charging of t-RNA
   b) Structure of tRNA
   c) Genetic code
2. Where in the cell eukaryotic transcription occur? What is core enzyme and holoenzyme? Discuss the different types of transcription factors and the functions. 2+4+4=10
3. Discuss the process of Spliceosome mediated splicing with proper illustrations. 10
4. Describe the AFLP technique and its applications. 8+2=10
5. What is the mechanism of translation initiation in eukaryotes with suitable diagrams? 10

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