



বিদ্যাসাগর বিশ্ববিদ্যালয়  
**VIDYASAGAR UNIVERSITY**

**Question Paper**

**B.Sc. Honours Examinations 2021**

(Under CBCS Pattern)

**Semester - V**

**Subject: ZOOLOGY**

**Paper : C 11-T & P**

**Molecular Biology**

**Full Marks : 60 (Theory-40 + Practical-20)**

**Time : 3 Hours**

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

**[Theory]**

**Group-A**

- A. Answer any **three** questions from the following : 12×3=36
1. Write the names of five general transcription factors those are involved in eukaryotic transcription? Write the short note on : Telomerase enzyme. Describe the amino acid activation. Write the Rules of Wobble base pair. 2+3+4+3
  2. What are the roles of t-RNA and ribosomes in protein synthesis? What is fidelity of translation? What is the primary difference between eukaryotic and prokaryotic translation? Which drugs inhibits the peptidyl transfer steps of elongation in bacteria? 4+2+4+2

3. Write down the basic mechanisms of splicing? What is alternative splicing? Write short note on : Exon and Intron. How is exon shuffling play an important role for gene evolution? 4+2+3+3
4. Write the function of 5'-cap and poly-A tail? Where does the transcription process occur in both prokaryotes and eukaryotes? Write the short note on RNA editing? Write the initiation process of replication of prokaryotes. Which polymerase enzyme have proofreading activity? 3+2+2+4+1
5. What is the role of C-AMP in Lac operon? Write down the basic difference between lac operon and Tryptophan operon? What are the enhancers and silencers? How miRNA mediated the gene silencing? 2+4+2+4
6. Write the short note on : SOS repair system. Write the basic steps of Northern Blotting Technique. What are the functions of RecBCD enzyme in prokaryotes? What are the prime application of PCR? 3+4+2+3

#### Group-B

- B. Answer any **two** questions from the following : 2×2=4
1. What is semi conservative mode of replication?
  2. State the role of primase in DNA replication.
  3. What is nucleotide & base excision repair system?
  4. Shine-Dalgarno (SD) sequence?

#### [Practical]

#### Group - A

- A. Answer any **one** question from the following : 15×1=15
1. Describe the Polytene and Lampbrush chromosome and draw labelled diagram.
  2. Isolation and quantification of genomic DNA using spectrophotometer (A260 measurement).
  3. Write the principle of Agarose gel electrophoresis and prepare Agarose gel.

### Group - B

B. Answer any **one** question from the following :

5×1=5

1. List the chemicals for DNA extraction.
2. Write down the significance of Lampbrush Chromosome.
3. Significance of polytene of polytene Chromosome.

Or,

Write about the importance of submission of Laboratory Note Book and Viva voce in the subject Molecular Biology.

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VidyaSagar University