UNDERGRADUATE SEMESTER-V EXAMINATION, 2021

Subject: Zoology **Course ID: 52611**

Course Code: SH/ZOO/501/C-11

Course Title: Molecular Biology

Full Marks -25 **Time: 2Hrs**

The numbers on the right hand margin indicate marks for the questions.

Candidate examinees are required to answer the questions on their self independent analyses.

UNIT -I

1. **Answer any five of the following questions:** **1x5=5**

   a) **DNA is the genetic material, was conclusively proved by the experimental evidence conducted in 1952, who were the scientists and what was their experimental components?**
   b) **How did Watson and Crick determine the structure of DNA?**
   c) **What does Chargaff's rule elaborate?**
   d) **Write down the central dogma of Molecular Biology.**
   e) **Write down the nature of RecBCD enzyme.**
   f) **Define SOS box and state the role of LexA repressor.**
   g) **Write down the function of m7G cap on eukaryotic mRNA and in which region does it locate?**
   h) **What is tRNA charging?**

UNIT-II

2. **Answer any two questions from the following :** **5x2=10**

   i. **Explain discontinuous replication. Design an experiment to prove that one strand of DNA replicates discontinuously. In fact one strand synthesizes**

Okazaki fragments and then these are ligated to produce complete strand. (2+3)

ii. What do you mean by Shine-Dalgarno sequence? State the location of the sequence. What is Met-tRNAf? What do you mean by initiation complex of translation? (1+1+2+1)

iii. Elaborate Wobble base pairing to explain degeneracy of genetic code. (5)

iv. How does poly-A tail is generated in the 3' end of m-RNA of eukaryotes.(5)

UNIT-III

3. Answer any one question from the following. 10x1=10

A. There are 64 codons in the genetic code. Of these codons 61 are amino acid coding and the other three do not code for any amino acid. State, how it became possible by the scientists to unfold the mystery of amino acid encoding by the nucleotide codons? Write down the name of amino acid encoded by only one triplet codon , four triplets, and six triplet codon sequence(s) . (7+3)

B. Define inducible and repressible operons. Elaborate trp operon. Describe mi RNA mediated gene silencing. (2+5+3)