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**DHANALAKSHMI SRINIVASAN COLLEGE  
OF ARTS & SCIENCE FOR WOMEN  
(AUTONOMOUS)**

(For Candidates admitted from 2020-2021 onwards)

**PG DEGREE EXAMINATIONS APRIL - 2021**

**M.Sc., - BIOTECHNOLOGY**

**MOLECULAR BIOLOGY**



**Time: 3 Hrs**

**Max.Marks: 75**

**PART - A**

**CHOOSE THE CORRECT ANSWER**

**(10X1=10)**

- The bases are held together in a DNA double helix by hydrogen bonds. These bonds are
  - Ionic bonds
  - Covalent bonds
  - Non-covalent bonds
  - Van der Waals forces
- DNA synthesis can be measured by estimating the incorporation of radiolabeled
  - Thymine
  - Guanine
  - Cytosine
  - Adenine
- What is the origin of replication?
  - Particular site at which DNA replication starts
  - Site which prevents initiation
  - Random location on the DNA
  - Site at which replication terminated
- Double-helix structure of DNA is discovered by\_\_\_\_\_
  - Gobind Khurana
  - Nirenberg
  - Watson and Crick
  - Darwin
- Which of the following processes does not occur in prokaryotes?
  - Transcription
  - Splicing
  - Translation
  - Replication
- The mRNA codon of valine is
  - GUC
  - UGG
  - CCA
  - TTG
- Genetic code is
  - The sequence of nitrogenous bases in mRNA molecule that codes for a protein
  - Is a triplet code
  - is non-overlapping
  - All of these
- During translation, proteins are synthesized
  - Ribosomes using the information on DNA
  - By lysosomes using the information on DNA
  - By ribosomes using the information on mRNA
  - by ribosomes using the information on rRNA
- Basic tools of genetic regulation is the ability of some proteins to bind to specific.
  - Regulatory DNA sequences
  - Regulatory RNA sequences
  - Enzymes of cells
  - Promoter portions of genes.

10. In eukaryotes and Bacteria, most common form of regulation is
- a) Promoter control
  - b) Translation control
  - c) Repressor control
  - d) Transcriptional control

**PART- B**

**ANSWER ALL THE QUESTIONS**

**(5X7=35)**

11. a) Write about structure of DNA?

**(OR)**

b) Give Short notes on Forms of DNA?

12. a) Describe about Molecular basis of Mutation?

**(OR)**

b) Give short notes on Splicing?

13. a) Briefly Explain on Initiation of Transcription?

**(OR)**

b) Write Short notes on RNA polymerase?

14. a) What is Genetic code Explain its characteristics?

**(OR)**

b) Explain Wobble hypothesis?

15. a) Brief notes on Trp Operon?

**(OR)**

b) Explain the concept of Lac operon?

**PART-C**

**ANSWER ANY THREE QUESTIONS**

**(3X10=30)**

- 16. Give an account on double helix structure of DNA?
- 17. Write an essay on Process of Prokaryotic and Eukaryotic Replication?
- 18. Describe the process of Transcription in Eukaryotes?
- 19. Give an account on the Post-Translational modifications of the proteins?
- 20. Give a detailed account on the Regulation of Gene expression in Eukaryotes?