

U.G. 5th Semester Examination - 2021**FOOD & NUTRITION****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : F&N-H-DSE-T-2A****(Molecular Biology)**

Full Marks : 40

Time : $2\frac{1}{2}$ Hours*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*1. Answer any **five** of the following questions:

2×5=10

- i) What is central dogma of life?
- ii) Give one example of purine and pyrimidine nucleotide with structure.
- iii) What is Chargaff's rule?
- iv) Why DNA replication is a semiconservative process?
- v) Write down the significance of poly A tail of mRNA.
- vi) Write down the role of restriction endonucleases and gyrase in genetic engineering.

vii) What is the function of amber, orche and opal codon?

viii) What is Wobble hypothesis?

2. Answer any **two** questions: 5×2=10

- i) Short note : Pribenow box and – 35 sequences.
- ii) Discuss the structure and function of tRNA. Write down the characteristics of genetic code.
- iii) Short note : Southern blotting technique and its application.

3. Answer any **two** questions: 10×2=20

- i) Discuss the post transcriptional modification of m-RNA. What is the mechanisms involved in termination of transcription? What is replication bubble? 5+3+2
- ii) Discuss the double helix structure of DNA proposed by Watson and Crick. Discuss the roles of different proteins and enzymes involved in DNA replication. 5+5
- iii) Discuss the basic principles of recombinant DNA technology with diagram. Define the term metabolomics and transcriptome. What is sticky end and blunt end ? 5+3+2
- iv) Discuss in detail the initiation of translation in prokaryotes. What is nucleosome? 8+2