Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)Re-accredited with A+ Grade by NAAC. Recognised by UGC Under Section 12B Coimbatore - 641 043, Tamil Nadu
Continuous Internal Assessment Test II – April 2025
Semester II

Class : I PG **Time : 2Hrs**
Major: Biochemistry **Max. Marks: 60**

23MBCC09 Genetics and Molecular Biology

CO1: Explain the laws of inheritance and the nature of the hereditary material at the cell, individual and population levels
CO2: Understand the role of genetic mechanisms in evolution diploid and haploid life stages, sexual reproduction human genetics.
CO3: Predict changes in population and distinguish genetic polymorphism and know the legal issues in genetics, professional ethics and behavior.
CO4: Acquire in-depth knowledge on the central dogma of molecular biology and provide possible translational opportunities for healthcare and industrial applications
CO5: Explore the regulation of genomes and associste challenges in dealing with human diseases

Part A **6 x 1 = 6**
Choose the Correct Answer

1. **During replication, Okazaki fragments elongate** CO1K1
   a. leading strand towards the replication fork b. lagging strand towards the replication fork
   c. leading strand away from the replication fork d. lagging strand away from the replication fork
2. **Termination of replication is triggered by** CO1K2
   a. DNA polymerase b. Helicase
   c. SSB d. Tus protein
3. **Transcription is the transfer of genetic information from** CO1K2
   a. DNA to RNA b. DNA to mRNA
   c. mRNA to tRNA d. tRNA to mRNA
4. **One end of tRNA matches genetic code in three-nucleotide sequences known as** CO2K1
   a. codon b. genetic code
   c. blunt ends d. anticodon
5. **The process by which protein synthesis from genetic code occurs is best described by** CO2K2
   a. transcription b. translation
   c. replication d. reproduction
6. **The drug that inhibits the initiation step of translation** CO2 K3
   a. ricin b. tetracycline
   c. streptomycin d. cyclohexylamine

Part B **3 x 6 = 18**
Answer ALL questions
Each answer should not exceed 400 words or two pages

7. a. Explain post-transcriptional modification on eukaryotes CO1K2
   (Or)
7. b. Write a brief note on RNA editing CO1K2
8. a Explain the operon concept CO1K3
   (Or)
8. b. Write a brief note on the classification of mutation CO2K2
9. a. Explain the factors influencing allele frequency. CO2K3
   (Or)
9. b. Give an account on the Genetic code CO2K4

Part C **3 x 12 = 36**

Answer ALL questions

Each answer should not exceed 800 words or four pages

10. a. Write a detailed essay on DNA replication in eukaryotes	CO1K1
(Or)	
10. b. Explain the types of DNA repair mechanisms in detail	CO1K2
11. a. Explain in detail about transcription in prokaryotes	CO1K3
(Or)	
11. b. Give an account of the molecular basis of diseases and epigenetics	CO2K3
12. a. Write in detail about the proteolytic pathways	CO2K2
(Or)	
12. b. Give a detailed account of the translation in prokaryotes	CO2K2

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Staff In-charge: Dr.T.Angayarkanni **No. of copies: 12**