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, India

Bachelor's Degree Examination – June 2021
VI Semester

Class : III UG **Time : 3 Hours**
Major : Botany **Max. Marks: 100**

18BBOC23 Molecular Biology

Part A 10 x1 =10
Choose the Correct Answer

1. The two strands in a DNA double helix is joined by CO1 K2
   a. Covalent bond b. Hydrogen bond
   c. Ionic bond d. phosphor diester bond

2. Chromatin is composed of CO2 K1
   a. nucleic acids and proteins b. nucleic acids only
   c. proteins only d. none of the above

3. Which of the following enzymes separates the two strands of DNA during replication? CO3 K2
   a. Gyrase b. Topo isomerase
   c. Helicase d. DNA polymerase

4. DNA polymerase synthesizes CO2 K2
   a. DNA in5'-3' direction b. DNA in 3'-5' direction
   c. mRNA in 3'-5' direction d. mRNA in 5'-3' direction

5. Anticodon is present in CO3 K1
   a. DNA b. tRNA c. rRNA d. mRNA

6. Which of the following purine bases is present in RNA? CO1 K3
   a. Uracil b. Thymine c. Cytosine d. Guanine

7. In Translation, this is not an essential component. CO2 K2
   a. amino acid b. ligase c. mRNA d. anticodon

8. This drug inhibits the initiation step of translation. CO1 K2
   a. ricin b. tetracycline
   c. streptomycin d. cyclohexylamine

9. Which of the following DNA repair mechanism known as the 'cut and patch mechanism'? CO2 K2
   a. Photo reactivation b. Nucleotide excision repair
   c. Base excision repair d. Mismatch repair

10. Xeroderma pigmentosum in human is associated with a mutation in CO3 K2
   a. Nucleotide excision repair b. Photo reactivation
   c. Base excision repair d. Mismatch repair

Part B **5 x 6 = 30**

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. Explain Chargaff's rule of DNA composition.	CO3 K3
(or)	
11.b. Write briefly on Mitochondrial DNA.	CO2 K3
12 a. Mention the inhibitors of DNA replication.	CO3 K2
(or)	
12.b. With diagram, explain Rolling circle mode of DNA replication.	CO3 K2
13.a. Comment on RNA types.	CO3 K3
(or)	
13.b. Describe the Chemical composition of RNA .	CO2 K2
14.a. Explain Central Dogma of Molecular Biology.	CO2 K3
(or)	
14.b.. Write about Molecular chaperones and protein folding.	CO4 K4
15.a. Give brief account on Mutation.	CO2 K2
(or)	
15.b. What are the consequences of DNA damage?	CO2 K2

Part C **5 x 12 = 60**

Answer ALL questions

Each answer should not exceed 800 words or four pages

16.a. Describe in detail Watson and Crick model of DNA double helix.	CO3 K3
(or)	
16.b. Explain the Chemistry of DNA.	CO2 K2
17.a. With suitable diagram, explain semiconservative mode of DNA replication	CO1 K1
(or)	
17.b. Comment on Cell cycle and DNA replication.	CO3 K2
18.a. Describe the Clover leaf model of tRNA.	CO2 K2
(or)	
18.b. Write the structure and function of mRNA.	CO3 K2
19.a. Mention the post translational modifications.	CO2 K3
(or)	
19.b. Elaborate in detail the protein synthesis in ***E.coli.***	CO3 K3
20.a. Comment on types of DNA damage.	CO3 K3
(or)	
20.b. With diagrams, explain DNA repair mechanisms.	CO2 K2

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