2023/06

SET A

B.Sc. BIOTECHNOLOGY
FOURTH SEMESTER (REPEAT)
MOLECULAR BIOLOGY
BBT-401

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 mins. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. In Griffith's experiment which of the following strains of pneumococci was isolated from dead mice?
   a. Live rough cells b. Dead rough cells
   c. Live smooth cells d. Dead smooth cells
2. Nucleic acids are a polymer of nucleotide monomeric units. Each nucleotide consists of:
   a. Base-sugar-OH b. Sugar-phosphate
   c. Base-sugar-phosphate d. None
3. Identify the purine base of nucleic acids in the following.
   a. Cytosine b. Thymine
   c. Uracil d. Adenine
4. The main polymerizing enzyme is.....
   a. Pol III b. Pol II
   c. Pol I d. None of the above
5. Choose the correct statement for transcription.
   a. DNA-RNA is not formed b. DNA-RNA is formed
   c. Primer is required d. Product is double stranded
6. Okazaki fragments are connected during.....
   a. Throughout the reaction b. Last phase of the reaction
   c. Not needed d. First phase of the reaction
7. Initiation factors are..... in bacteria for translation.
   a. 4 b. 13
   c. 14 d. 3
8. Genetic code represents.....
   a. tRNA b. rRNA
   c. mRNA d. Anticodon loop
9. Photoreactivation is responsible for..... repair.
   a. T-T dimer b. A-A dimer
   c. T-C dimer d. G-G dimer
10. The structure of the tRNA is.....
    a. Cloverleaf b. Crossbow
    c. L shaped d. Plus shaped

11. What are the characteristics of rough pneumococci strains?
    a. Non-capsulated and pathogenic
    b. Non-capsulated and nonpathogenic
    c. Capsulated and pathogenic
    d. Capsulated and non-pathogenic

12. Anticodon is present in:
    a. DNA
    b. tRNA
    c. rRNA
    d. mRNA

13. Which of the following bases is not present in DNA?
    a. Adenine
    b. Guanine
    c. Thymine
    d. Uracil

14. Which of the following RNAs are the most abundant in an animal cell?
    a. mRNA
    b. tRNA
    c. miRNA
    d. rRNA

15. For transcription initiation .....is involved.
    a. IF
    b. Rho factor
    c. Sigma factor
    d. EuF

16. The telomerase is needed for.....
    a. Whole strand synthesis
    b. End point synthesis
    c. Only the DNA part
    d. Only RNA part

17. The enzymes mainly responsible for .....are Pol I and Pol II.
    a. Ligation
    b. Polymerization
    c. Priming
    d. Repair

18. In mutation..... are changed.
    a. RNA
    b. Amino acids
    c. Protein
    d. Nucleotides

19. tRNA other than first, joint at.....
    a. E site
    b. P site
    c. F site
    d. A site

20. The mRNA is region is protected from exonuclease. It is..... bond.
    a. 5′3′
    b. 3′5′
    c. 3′3′
    d. 5′5′

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Descriptive

Time : 2 hr. 30 mins. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1.	Explain the roles of enzymes in replication.	10
2.	Define DNA repair. Explain the photoreactivation mechanism of repairing DNA.	2+8=10
3.	What is mutation? Describe the characteristic features of mutations. Differentiate between a mutator gene and a mutable gene.	3+5+2=10
4.	Explain the process of central dogma. Write a note on transcription in bacteria.	3+7=10
5.	Write short notes on: a) Ribozymes b) Hyperchromatic Effect	5×2=10
6.	Describe Griffith's experiment. What is the significance of the Griffith experiment?	8+2=10
7.	Explain the role of sites of ribosome during translation process.	3+7=10
8.	What is RNA? Write a note on the different types of RNA. Describe the structure of Transfer RNA (tRNA) with a suitable diagram.	2+3+5=10

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