

**B.Sc. BIOTECHNOLOGY
FOURTH SEMESTER
MOLECULAR BIOLOGY
BBT-401**

**SET
B**

[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

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

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| 1. Describe Griffith's experiment. What is the significance of the Griffith experiment? | 8+2=10 |
| 2. 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 |
| 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 | 2×5=10 |
| 6. Explain the roles of enzymes in replication. | 10 |
| 7. Explain the role of sites of ribosome during translation process. | 3+7=10 |
| 8. Define DNA repair. Explain the photoreactivation mechanism of repairing DNA. | 2+8=10 |

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