

**B.Sc. BIOTECHNOLOGY
FOURTH SEMESTER [SPECIAL REPEAT]
MOLECULAR BIOLOGY**

**SET
A**

BBT-401

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

Choose the correct answer from the following:

1 × 20 = 20

- What are the characteristics of rough pneumococci strains?
 - Non-capsulated and pathogenic
 - Non-capsulated and nonpathogenic
 - Capsulated and pathogenic
 - Capsulated and non-pathogenic
- 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
- Anticodon is present in:
 - DNA
 - tRNA
 - rRNA
 - mRNA
- Nucleic acids are a polymer of nucleotide monomeric units. Each nucleotide consists of:
 - Base-sugar-OH
 - Sugar-phosphate
 - Base-sugar-phosphate
 - None
- Which of the following bases is not present in DNA?
 - Adenine
 - Guanine
 - Thymine
 - Uracil
- Identify the purine base of nucleic acids in the following.
 - Cytosine
 - Thymine
 - Uracil
 - Adenine
- Which of the following RNAs are the most abundant in an animal cell?
 - mRNA
 - tRNA
 - miRNA
 - rRNA
- The main polymerizing enzyme is.....
 - Pol III
 - Pol II
 - Pol I
 - None of the above
- For transcription initiationis involved.
 - IF
 - Rho factor
 - Sigma factor
 - EuF
- Choose the correct statement for transcription.
 - DNA-RNA is not formed
 - DNA-RNA is formed
 - Primer is required
 - Product is double stranded

11. The telomerase is needed for.....
 - a. Whole strand synthesis
 - b. End point synthesis
 - c. Only the DNA part
 - d. Only RNA part
12. Okazaki fragments are connected during.....
 - a. Throughout the reaction
 - b. Last phase of the reaction
 - c. Not needed
 - d. First phase of the reaction
13. The enzymes mainly responsible forare Pol I and Pol II.
 - a. Ligation
 - b. Polymerization
 - c. Priming
 - d. Repair
14. Initiation factors are..... in bacteria for translation.
 - a. 4
 - b. 13
 - c. 14
 - d. 3
15. In mutation..... are changed.
 - a. RNA
 - b. Amino acids
 - c. Protein
 - d. Nucleotides
16. Genetic code represents.....
 - a. tRNA
 - b. rRNA
 - c. mRNA
 - d. Anticodon loop
17. tRNA other than first, joint at.....
 - a. E site
 - b. P site
 - c. F site
 - d. A site
18. Photoreactivation is responsible for..... repair.
 - a. T-T dimer
 - b. A-A dimer
 - c. T-C dimer
 - d. G-G dimer
19. The mRNA is region is protected from exonuclease. It is..... bond.
 - a. 5'3'
 - b. 3'5'
 - c. 3'3'
 - d. 5'5'
20. The structure of the tRNA is.....
 - a. Cloverleaf
 - b. Crossbow
 - c. L shaped
 - d. Plus shaped

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

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| 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. Describe Griffith's experiment. What is the significance of the Griffith experiment? | 8+2=10 |
| 6. 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 |
| 7. Explain the role of sites of ribosome during translation process. | 3+7=10 |
| 8. Write short notes on: | 5+5=10 |
| a) Ribozymes | |
| b) Hyperchromatic Effect | |

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