

**B.Sc. MICROBIOLOGY
THIRD SEMESTER
MOLECULAR BIOLOGY
BMB-303**

**SET
B**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

(Objective)

Marks: 20

Choose the correct answer from the following:

1×20=20

- Nucleotides are connected by which bond?
 - Glycosidic
 - Disulphide
 - Hydrophobic interaction
 - Phosphodiester bond
- The bond connecting nucleic acid strand is.....
 - Stacking interaction
 - Vanderwall forces
 - Phosphodiester linkage
 - Hydrogen bond
- Multiple origin of replication is found in.....
 - Eukaryotes
 - Bacteria
 - Only in plant cell
 - Only in animal cell
- The product of replication in animal cell is.....
 - Linear
 - Circular
 - Cut DNA
 - Replicative fork
- Choose the false statement for replication.
 - RNA pol is required
 - Primer is not required
 - The enzyme is DNA dependent
 - Product is single stranded
- Space between Okazaki fragments are.....
 - Ligated and filled
 - Filled and ligated
 - Only filled
 - Only ligated
- Initiation factors are..... in bacteria for translation.
 - 4
 - 13
 - 14
 - 3
- The amino acids are present at top of tRNA which is mediated by:
 - tRNA
 - Variable loop
 - Genetic code
 - Anticodon loop
- Post translational modification makes..... native.
 - RNA
 - DNA
 - Both a and b
 - Protein
- Lac operon is.....in nature.
 - Constant
 - Polymorphism
 - Monocistronic
 - Polycistronic

11. The most reactive sugar is.....
 - a. Pentose
 - b. Deoxyribose
 - c. Hexose
 - d. Ribose
12. The complex of DNA and histone proteins at metaphase is.....
 - a. Chromatid
 - b. Chromosome
 - c. Chromomere
 - d. Chromatin
13. DNA is quantified at the wavelength.....
 - a. 270
 - b. 280
 - c. 300
 - d. 260
14.is responsible for joining Okazaki fragments.
 - a. Ligase
 - b. Topoisomerase
 - c. Pol I
 - d. Pol III
15. Rho factor is involved in..... of transcription process.
 - a. Initiation
 - b. Elongation
 - c. Termination
 - d. All are correct
16. Telomerase is not required for.....
 - a. Replication
 - b. Transcription
 - c. Eukaryotic replication
 - d. Prokaryotic replication
17. The enzymes mainly responsible for repair are:
 - a. Pol II and Pol III
 - b. Pol I and Pol III
 - c. Pol I, Pol II and Pol III
 - d. Pol I and Pol II
18. Ethidium bromide intercalates in.....
 - a. Protein
 - b. Amino acids
 - c. Polypeptides
 - d. DNA
19. Imagine the DNA having no telomere.
 - a. It is circular
 - b. Circular and double stranded
 - c. It is linear
 - d. Circular or exonuclease DNA product
20. The cap in mRNA isbond.
 - a. 5'3'
 - b. 3'5'
 - c. 3'3'
 - d. 5'5'

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

- | | |
|--|--------|
| 1. Make the chemical structure of Deoxyribose. Explain the Watson and Crick model of DNA. | 3+7=10 |
| 2. What do you mean by replication? Write the functions of enzymes involved in eukaryotic replication. | 3+7=10 |
| 3. Explain the mechanism of transcription termination process. | 10 |
| 4. What is cot value? Derive the cot half value mathematically. | 3+7=10 |
| 5. What is mutation? Differentiate somatic and germinal mutation. | 3+7=10 |
| 6. Explain Messelson and Stahl experiment with suitable diagram. | 2+8=10 |
| 7. Write a note on gene regulation. Explain Lac operon in detail. | 4+6=10 |
| 8. Define post transcriptional modification. Mention the types of modifications seen for mRNA. | 2+8=10 |

== *** ==