

**M.Sc. BIOTECHNOLOGY
SECOND SEMESTER
MOLECULAR BIOLOGY
MBT-201**
[USE OMR SHEET FOR OBJECTIVE PART]

**SET
A**

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

Choose the correct answer from the following:

1 × 20 = 20

1. What is Uracil?
 - a. A Purine
 - b. A Pyrimidine
 - c. Both
 - d. None
2. What is Euchromatin?
 - a. Transcriptionally active, light stained region of chromosome
 - b. Transcriptionally active, dark stained region of chromosome
 - c. Transcriptionally inactive, light stained region of chromosome
 - d. Transcriptionally inactive, dark stained region of chromosome
3. Who first discovered the living cell?
 - a. Anton Van Leeuwenhoek
 - b. Robert Hooke
 - c. Both
 - d. None
4. What is Trp operon?
 - a. Inducible system
 - b. Repressible system
 - c. Interband
 - d. All
5. Microsatellite is a part of.....
 - a. Chromosome
 - b. Amino acid
 - c. RNA
 - d. Nucleic acid
6. Repressor comes fromgene.
 - a. S
 - b. I
 - c. R
 - d. O
7. Replication makes the.....
 - a. Genes
 - b. RNA
 - c. Introns
 - d. Genetic material
8. Ribosome is involved in.....
 - a. Replication
 - b. Translation
 - c. Transcription
 - d. All are correct
9. UV causes.....
 - a. T-T reaction
 - b. T-T dimer
 - c. T-T substitution
 - d. T-T interaction
10. Why lampbrush chromosomes are called so?
 - a. Due to lateral loops
 - b. Due to balbiani rings
 - c. Due to chromomeres
 - d. All

11. There arereleasing factors in bacteria for translation.
a. 3
b. 13
c. 4
d. 19
12. EtBr is an example of.....
a. DNA marker
b. DNA ladder
c. Chemical mutagen
d. Physical mutagen
13. Pol I and Pol II are.....
a. Polymerizing enzymes
b. Telomerase synthesis enzymes
c. Ligating enzymes
d. Repair enzymes
14.gets converted to protein.
a. Pre RNA
b. Introns
c. Native RNA
d. Genes
15. The cause of mutation is.....
a. Mutagen
b. DNA
c. RNA
d. All are correct
16. Codons are present in.....
a. tRNA
b. Variable loop
c. Anticodon loop
d. Genetic code
17. 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
18. Which of the following is present in a nucleosome?
a. H2A
b. H2C
c. Both a and b
d. H5
19. The cap in mRNA isbond.
a. 5'3'
b. 3'5'
c. 5'5'
d. 3'3'
20. TATA box is a part of.....
a. Enzyme
b. Promoter
c. RNA
d. Operator

(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 different types of enzymes involved in replication process. | 10 |
| 2. What is chromosome? Explain types of chromosomes. | 2+8=10 |
| 3. Explain the Watson and crick model. Calculate the number of adenines in DNA. (Given, Total=3000 and G=200). | 8+2=10 |
| 4. Explain the role of sigma factor. Write a note on transcription in bacteria. | 3+7=10 |
| 5. Illustrate the mechanism of gene regulation in bacteria by taking the model of Lac operon. | 10 |
| 6. Explain the process of translation initiation. Mention the reaction of amino acid activation. | 7+3=10 |
| 7. Write is promoter? Write the significance of sigma and rho factors. | 3+7=10 |
| 8. Define DNA repair. Explain the photoreactivation mechanism of repairing DNA. | 2+8=10 |

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