**UUCMS. No.**

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# B.M.S COLLEGE FOR WOMEN
**BENGALURU – 560004**

**V SEMESTER END EXAMINATION – JAN/FEB-2024**

## B.Sc. – MICROBIOLOGY

## MOLECULAR BIOLOGY

**Course Code: MB5 DSC05** **QP Code: 5034**
**Duration: 2 ½ Hours** **Max marks: 60**

**Instructions: 1. Answer all the sections.**
**2. Draw diagrams wherever necessary.**

### SECTION - A

**I. Answer the following (5x2=10)**

1. Explain the role of transcription factors TFIID and TFIIF in eukaryotic transcription.
2. Wobble base is one of the protective devices against mutations. Justify the statement.
3. Explain the significance of Negative regulation in prokaryotes
4. Justify the role of Peptidyl transferase during protein synthesis?
5. What are protein inhibitors? Give examples

### SECTION - B

**II. Answer <u>any 4</u> of the following (4x5=20)**

6. Elaborate is alternative splicing and mention the significance.
7. Bacteria during conjugation undergo sigma mode of replication. Explain the process.
8. Illustrate the role of regulatory proteins in Lytic cycle in Lambda phage
9. Write in brief about role of tRNA with neat labelled diagram and justify its significance
10. Elaborate on Catabolic repression and its importance

11. Describe the process of Protein maturation and its significance

## SECTION – C

**III. Answer <u>any 2</u> of the following (2x10=20)**

12. RNA capping and Poly A tail modification is protecting pre mRNA from endonuclease enzymes. Explain the beauty of this modification.

13. Explain in detail the steps involved in prokaryotic transcription.

14. Explain in detail about Post translational modifications of proteins and its significance

15. Justify attenuation with context to Tryptophan Operon

## SECTION – D

**IV. Answer all multiple choice questions (MCQs) (10x1=10)**

16. A factor which dismantle the histone during the elongation process is called

a) FACT

b) CTD

c) TFIIH

d) ELL

17. During splicing, which of the following snRNPs bind to a nucleotide sequence found in introns called the branch site.

a) U1

b) U2

c) U4

d) U6

18. The protein involved in bacterial cell division is

a) FtsZ

b) FtsX

c) FtsY

d) FtsV

19. Semi- Conservative replication of DNA was first demonstrated in

a) *Escherichia coli*

b) *Streptococcus pneumoniae*

*c) Salmonella typhimurium*

d) *Drosophila melanogaster*

20. *fmet* refers to _____

a) Former methionine

b) Formed methionine

c) Formyl methionine

d) First methionine

21. Catabolic repression is found in bacteria are provided with _____

a) Galactose only

b) Sucrose only

c) Glucose and Lactose

d) None of the above

22. In *Lac* operon *Lac* Y gene codes for _____

a) Transacetylase

b) Permease

c) beta- galactosidase

d) All the above

23. The factor which prevents/ inhibits the binding of 30S subunit to 50S subunit during Protein synthesis is

a) IF1

b) IF2

c) IF3

d) IF4

24. Expand HSP

a) Highly stable permease

b) Heat stable protein

c) Heat Stable permease

d) None of the above

25. Discharged tRNA exits from _____

a) A site

b) E site

c) P site

d) All the above