

Roll No. : .....

Total No. of Questions : 16 ]

[ Total No. of Printed Pages : 3

# ZOOLSEM-111

M.Sc. (Ist Semester) Examination Dec., 2022

## ZOOLOGY

Paper - III

(Molecular Biology and Cytogenetics)

Time : 3 Hours ]

[ Maximum Marks : 40

The question paper contains three Sections.

### Section-A

(Marks : 1 × 10 = 10)

**Note :-** Answer all *ten* questions (Answer limit 50 words). Each question carries 1 mark.

### Section-B

(Marks : 2 × 6 = 12)

**Note :-** Answer any *six* questions by selecting at least *two* questions from each Unit (Answer limit 200 words). Each question carries 2 marks.

### Section-C

(Marks : 6 × 3 = 18)

**Note :-** Answer any *three* questions by selecting *one* question from each Unit (Answer limit 500 words). Each question carries 6 marks.

### Section-A

1. (i) What are Micro RNA ?
- (ii) What is the function of Topoisomerases ?

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- (iii) Give functions of DNA Polymerase III enzyme.
- (iv) What is TATA box ?
- (v) What are Non-coding genes ?
- (vi) What is Capping of RNA ?
- (vii) What are Retroposons ?
- (viii) What are Enhancers ?
- (ix) Define Heterokaryon.
- (x) What are Anaphase Promoting Factors ?

### **Section-B**

#### **Unit-I**

- 2. Briefly describe scope of Molecular biology.
- 3. Draw a Well-labelled diagram only to show clover-leaf structure of t-RNA.
- 4. Give structure and function of Prokaryotic RNA polymerase.

#### **Unit-II**

- 5. Explain any *two* post translational modifications.
- 6. Give important components of Lac operon.
- 7. Write a note on Holliday junctions.

#### **Unit-III**

- 8. Write a note on Somatic Cell fusion.
- 9. Explain the role of p53 in cancer.
- 10. Explain how Tumor suppressor Genes work.

## **Section-C**

### **Unit-I**

11. Describe the process of DNA replication in Eukaryotes.
12. Give a comparative account of structure of B and Z DNA.

### **Unit-II**

13. Describe the steps of Translation in Prokaryotes.
14. Give an illustrative account of types of DNA repair.

### **Unit-III**

15. Discuss gene imprinting and its importance.
16. Explain the role of CdK and cyclins in cell cycle.