

**D**

**(20621)**

**Roll No. ....**

**M. Sc.-IV Sem.**

**14141(CV-II)**

**M. Sc. IVth Semester Examination, June 2021**

**ZOOLOGY-XVI(d)**

**(Human and Microbial Cytogenetics and**

**Molecular Biology)**

**(H-4077)**

*Time : 1½ Hours]*

*[Maximum Marks : 50*

**Note :** Attempt questions from all Sections as per instructions.

**Section-A**

**(Very Short Answer Type Questions)**

Answer any *two* questions out of the following five questions. Each question carries 5 marks. Very short answer is required not exceeding 75 words.  $5 \times 2 = 10$

1. Termination codon.

2. Super female.
3. Monoploidy.
4. Centromere.
5. Bacterial chromosome.

### Section-B

#### (Short Answer Type Questions)

Answer any *one* question out of the following three questions. Each question carries 10 marks. Short answer is required not exceeding 200 words.  $10 \times 1 = 10$

6. Euchromatin.
7. Bacterial transformation.
8. DNA repair.

### Section-C

#### (Detailed Answer Type Questions)

Answer any *two* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.

$15 \times 2 = 30$

9. Make a well labelled diagram of Metaphase chromosome and explain it in detail.
10. What is human genome project ? Discuss the Aminocentesis and gene therapy in regard to human genetics.
11. Write an essay on Genetic code.
12. Explain the process of protein synthesis in Eukaryotic cell.
13. Explain cell cycle with the help of suitable diagram.

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**M. Sc.-IV Sem.**

**14138 (CV-II)**

**M. Sc. IVth Semester Examination, June 2021**

**ZOOLOGY-XIII (D)**

**(Advanced Cell Biology)**

**(H-4074)**

*Time : 1½ Hours]*

*[Maximum Marks : 50*

**Note :** Attempt questions from all Sections as per instructions.

**Section-A**

**(Very Short Answer Type Questions)**

Answer any *two* questions out of the following five questions. Each question carries 5 marks.  $5 \times 2 = 10$

1. DNA sequencing.

2. Fish.

(2)

3. bcl-2 gene.
4. Cell adhesion molecules.
5. G-protein linked receptor.

**Section-B**

**(Short Answer Type Questions)**

Answer any *one* question out of the following three questions. Each question carries 10 marks.  $10 \times 1 = 10$

6. Explain programmed cell death (Apoptosis).
7. Cell membrane proteins and receptors.
8. Explain flow-cytometry.

**Section-C**

**(Detailed Answer Type Questions)**

Answer any *two* questions out of the following five questions. Each question carries 15 marks.  $15 \times 2 = 30$

9. Define regulation of gene expression in bacteriophage.
10. Demonstrate the production and application of Tag-polymerase.

(3)

11. Give a concise account on different kinds of vectors available for gene cloning. Discuss the use of plasmids and viruses for this purpose under the different conditions.
12. Write a detailed account on Hierarchy in organization of cells.
13. Describe membrane transport, cell to cell communication and its importance.

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**M. Sc.-IV Sem.**

## **14139 (CV-II)**

**M. Sc. IVth Semester Examination, June 2021**

**ZOOLOGY-XIV (d)**

**(Chromosome and Genomic Organization)**

**(H-4075)**

*Time : 1½ Hours]*

*[Maximum Marks : 50*

**Note :** Attempt questions from all Sections as per instructions.

### **Section-A**

#### **(Very Short Answer Type Questions)**

Answer any *two* questions out of the following five questions. Each question carries 5 marks. Very short answer is required not exceeding 75 words.  $5 \times 2 = 10$

1. Define nucleolar organizer.
2. What is C-value paradox ?



(2)

3. Define mobile DNA.
4. What is the significance of X/A ratio ?
5. What is sex-mosaic ?

### Section-B

#### (Short Answer Type Questions)

Answer any *one* question out of the following three questions. Each question carries 10 marks. Short answer is required not exceeding 200 words.  $10 \times 1 = 10$

6. Give an account of molecular structure of an eukaryotic gene.
7. Describe the peculiar features of cancer cells.
8. Write a note on conversion of prot-oncogenes into oncogenes.

### Section-C

#### (Detailed Answer Type Questions)

Answer any *two* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.  $15 \times 2 = 30$

(3)

9. Write in detail about molecular basis of cellular checkpoints.
10. Define in detail the chromosomal organization of genes and non-coding DNA.
11. Discuss the genetic regulation of cell division in eukaryotes.
12. Give an account of the structure of Nucleus. Discuss the structure and function of different components of Nucleus.
13. What is dosage compensation ? How is this achieved ? Discuss the difference in the mechanism involved in *Drosophila*.