D

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(20524)

Roll No.

M.Sc.-IV Sem.

14138

M. Sc. Examination, May-2024

ZOOLOGY

Advanced Cell Biology

(H-4074)

Time : Three Hours] *[Maximum Marks : 50*

Note : Attempt **all** the Sections as per given instructions.

Section–A

(Very Short Answer Questions)

Note : Write in brief (50 words) on all of the following: 5×2=10

1. Prebiotics
2. Fish
3. DNA bending
4. Cell junction
5. SEM

Section–B

(Short Answer Questions)

Note : Attempt any **two** questions of the following : 2×5=10

6. Prokaryotic and Eukaryotic genome.

7. Flourescence Microscopy

8. Apoptosis

Section–C

(Long Answer Questions)

Note : Attempt any **three** questions of the following: 3×10=30

9. Demonstrate the production and application of Tag-Polymerase.

10. Write an essay on gene cloning.

11. Describe the genetics of Necrosis. How does it differ from Pathological Cell death ?

12. Discuss the use of Plasmids and viruses for cloning under different conditions.

13. Explain in detail the Biology of Cancer?

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(20524)

Printed Pages : 4

Roll No. .....

M.Sc.- IV Sem.

14139

M.Sc. Examination, May -2024

ZOOLOGY

Chromosome and Genomic Organization

(H-4075)

Time : Three hours] *[Maximum Marks : 50*

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

Section-A

(Very Short Answer Type Questions)

Note: Answer all the **five** questions. Each question carries 2 marks. Very short answer is required not exceeding 75 words. 5×2=10

1. What do you mean by cellular checkpoint ? 2

2. Define Totipotency. 2

3. Define sat DNA. 2

4. What is the significance of X/A ratio ? 2

5. What do you mean by Genetic imprinting ? 2

Section-B

(Short Answer Type Questions)

Note: Answer any **two** questions out of the following three questions. Each question carries 5 marks. Short answer is required not exceeding 200 words. 2×5=10

6. Give a brief account of telomeric and centromeric DNA sequences. 5

7. Write about the Oncogene activation . 5

8. Write a note on molecular structure of heterochromatin ? 5

Section-C

(Detailed Answer Type Questions)

Note: Answer any **three** questions out of the following five questions. Each question carries 10 marks. Answer is required in detail. 3×10=30

9. Describe the genetic regulation of cell division in eukaryotes. 10

10. Give a detailed account of molecular mehanism of Cancer. Also discuss the role of Oncogene and Tumor suppressor gene in carcinogenesis. 10

11. Define the chromasomal organization of genes and Non coding DNA. 10

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Roll No. .....

M.Sc.- IV Sem.

14140

M.Sc. Examination, May-2024

ZOOLOGY

Genomic Analysis Immunogenetics

(H-4076)

Time : Three hours] *[Maximum Marks : 50*

Note: *Attempt questions from* ***all*** *the sections as per instructions.*

Section-A

(Very Short Answer Type Questions)

Note: Attempt all the **five** questions. Each question carries 2 marks. Very short answer is required not exceeding 75 words. 5×2=10

1. Genetic counselling
2. Chromosomes painting
3. What is AFLP analysis?
4. DNA Isolation
5. Pre-implantation screening

Section-B

(Short Answer Type Questions)

Note: Attempt any **two** questions out of the following three questions. Each question carries 5 marks. Short answer is required not exceeding 200 words.

$2 \times 5 = 10$

6. T-cell receptor expression and regulation.

7. Role of transposable elements in genetic regulation.

8. Give a short note on application of molecular markers.

Section-C

(Long Answer Type Questions)

Note: Attempt any **three** questions out of the following five questions. Each question carries 10 marks. Answer is required in detail.

$3 \times 10 = 30$

9. Write an essay in detail on parental screening methods?

10. Molecular analysis of Genomic DNA in eukaryotes?

11. Give a detailed account application of RELP in disease diagnosis?

12. Describe the molecular structure of IgG and IgM.

13. Describe the ethical and legal aspects of genetic counselling.

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Printed Pages : 3

(20524)

Roll No.

M.Sc.-IV Sem.

14141

M.Sc. Examination, May-2024

ZOOLOGY

Human and Microbial Cytogenetics and Molecular Biology

(H-4077)

Time : Three Hours] *[Maximum Marks : 50*

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

Section–A

(Very Short Answer Type Questions)

Note : Attempt **all** the **five** questions. Each question carries 2 marks. Very short answer is required not exceeding 75 words. 5×2=10

1. Frame-Theft mutation
2. Polytene Chromosomes
3. Telomere

[P.T.O.

4. Somatic Cell

5. Heterokaryon

Section–B

(Short Answer Type Questions)

Note : Answer any **two** questions out of the following three questions. Each question carries 5 marks. Short answer is required not exceeding 200 words. 2×5=10

6. What do you know about heterochromatin?

7. Write about the types of bacteriophage.

8. Write an essay on cell-cycle.

Section–C

(Long Answer Type Questions)

Note : Answer any **three** questions out the following five questions. Each question carries 10 marks. Answer is required in detail. 3×10=30

9. Describe numerical abnormalities of human chromosomes.

10. Describe Gene expression and its regulation in prokaryotes.

11. Explain DNA polymorphisms.

12. Explain the translation machinery in eukaryotic cells.

13. Describe transcription in eukaryotic cell.