

VI/zoo (ix)

2014

(6th Semester)

ZOOLOGY

Paper : ZL-IX

(Molecular Biology and Genetics)

Full Marks : 55

Time : 2 hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

The questions are of equal value

1. Describe the structure of tRNA with a neat labelled diagram.

Or

Write a detailed note on lampbrush chromosome.

2. Explain semiconservative method of DNA replication.

Or

Describe the process of DNA replication in prokaryotic cells.

14G—300/567a

(Turn Over)

3. What are the different characteristics of genetic code?

Or

Write a note on lac operon.

4. Explain Mendel's dihybrid cross.

Or

Explain the inheritance of multiple alleles with a suitable example.

5. What do you mean by sex-linked inheritance? Illustrate sex-linked inheritance with suitable examples.

Or

Write a short note on chromosomal sex determination.

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(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. Polytene chromosome are formed due to repeated division of chromosome without cytoplasmic division. This type of division is called

- (a) mitosis ()
- (b) meiosis ()
- (c) endomitosis ()
- (d) endomeiosis ()

2. DNA replication is

- (a) semiconservative and semidiscontinuous ()
- (b) semiconservative and discontinuous ()
- (c) conservative and semidiscontinuous ()
- (d) conservative and continuous ()

3. The part of tRNA that takes part in interaction with the codon of mRNA is called

- (a) T-loop ()
- (b) amino acid attachment site ()
- (c) D-loop ()
- (d) anticodon ()

(3)

4. Which one of the following is also called 'law of purity of gametes'?

- (a) Law of segregation ()
- (b) Law of dominance ()
- (c) Law of independent assortment ()
- (d) All of the above ()

5. Down's syndrome is

- (a) XO female ()
- (b) XXY males ()
- (c) trisomy-18 ()
- (d) trisomy-21 ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following in 5 to 8 sentences each :

3×5=15

1. Heterochromatin

(5)

2. Mismatch repair of DNA

3. Post-transcriptional modification of mRNA

4. Chromosome theory of inheritance

5. Klinefelter's syndrome

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(6th Semester)

ZOOLOGY

Paper : ZL-X

(Developmental Biology)

Full Marks : 55

Time : 2 hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

*The figures in the margin indicate full marks
for the questions*

- 1. What is fertilization? Explain the mechanism
of *in vivo* fertilization. 1+6=7**

Or

Describe the different patterns of cleavage. 7

- 2. What is gastrulation? Explain the mechanism
of gastrulation in amphibians. 1+6=7**

Or

**Describe the extraembryonic membranes in
chick. 7**