2015

(6th Semester)

ZOOLOGY

Paper : ZL–IX

(Molecular Biology and Genetics)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(*Marks* : 35)

The figures in the margin indicate full marks for the questions

1. Describe the structure of nucleosome. Add a note on the higher order of chromosome structure. 7

Or

Write a detailed note on polytene chromosome.

2. Explain the mechanisms of DNA replication in prokaryotic cells. 7

Or

Explain the mechanisms of nucleotide excision repair and base excision repair. 3½+3½=7

3. Explain the process of transcription in prokaryotic cells. 7

Or

Describe the mechanisms of translation in prokaryotic cells.

4. Write short notes on the following : 3½×2=7

(a) Incomplete dominance

(b) Codominance

Or

What do you mean by cytoplasmic inheritance? Explain it with two suitable examples. 1+3+3=7

5. Write short notes on the following : 3½×2=7

(a) Klinefelter's syndrome

(b) Down's syndrome

Or

What is mutation? Give an account of structural changes in the chromosome. 1+6=7

★★★

2015

(6th Semester)

ZOOLOGY

Paper : ZL–IX

(Molecular Biology and Genetics)

(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. The 3′-OH of tRNA always ends with which of the following base sequences?

(a) GGG ( )

(b) CCU ( )

(c) UCT ( )

(d) CCA ( )

2. DNA replication occurs in

(a) 3′ → 5′ direction ( )

(b) 5′ → 3′ direction ( )

(c) 5′ ↔ 3′ direction ( )

(d) None of the above ( )

3. Which one of the following is stop codon?

(a) UAA ( )

(b) UAG ( )

(c) UGA ( )

(d) All of the above ( )

4. Mendelian dihybrid ratio is

(a) 3 : 1 ( )

(b) 9 : 3 : 3 : 1 ( )

(c) 15 : 1 ( )

(d) 4 : 8 : 4 ( )

5. Which one of the following is sex-linked trait?

(a) Haemophilia ( )

(b) Klinefelter's syndrome ( )

(c) Turner's syndrome ( )

(d) Down's syndrome ( )

SECTION—B

(*Marks* : 15)

Answer/Write short notes on the following in *5* to *8* sentences each : 3×5=15

1. Draw a labelled diagram of Watson and Crick model of DNA.

2. DNA double-stranded breakage

3. Central dogma of molecular biology

4. Law of segregation

8. Complete linkage

• • •