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(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 in detail the structure of tRNA with a neat labeled diagram. 7

Or

Write short notes on the following : $3\frac{1}{2}+3\frac{1}{2}=7$

- (a) Heterochromatin
(b) Lampbrush chromosome

2. Describe the mechanism of DNA replication in prokaryotic cell. 7

Or

Discuss the different types and causes of DNA damage, and add a note on the repair of single-stranded damage of DNA. 7

3. What do you understand by genetic code? Give a detailed account of genetic code. 7

Or

What is an operon? Give an illustrated account of *lac* operon. 7

4. Write short notes on the following : $3\frac{1}{2}+3\frac{1}{2}=7$

- (a) Chromosome theory of inheritance
(b) Pleiotropism

Or

What are multiple alleles? Explain the inheritance of multiple alleles with two examples. 7

(3)

5. What is sex-linked inheritance? Explain this phenomenon with reference to man and *Drosophila* giving suitable examples. 7

Or

Write short notes on the following : $3\frac{1}{2} + 3\frac{1}{2} = 7$

- (a) Chromosomal sex determination
- (b) Complete linkage

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Subject Code : ZOO/VI/09

Booklet No. A

Date Stamp

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To be filled in by the Candidate

DEGREE 6th Semester
(Arts / Science / Commerce /
.....) Exam., **2017**

Subject

Paper

INSTRUCTIONS TO CANDIDATES

- 1. The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.**
- 2. This paper should be ANSWERED FIRST and submitted within 45 minutes of the commencement of the Examination.**
- 3. While answering the questions of this booklet, any cutting, erasing, over-writing or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.**

To be filled in by the Candidate

DEGREE 6th Semester
(Arts / Science / Commerce /
.....) Exam., **2017**

Roll No.

Regn. No.

Subject

Paper

Descriptive Type

Booklet No. B

*Signature of
Scrutiniser(s)*

*Signature of
Examiner(s)*

*Signature of
Invigilator(s)*

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ZOO/VI/09

2 0 1 7
(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 distance between two nucleotides in a double-helix DNA is

(a) 34 Å ()

(b) 3.4 Å ()

(c) 20 Å ()

(d) 10 Å ()

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(2)

2. Semi-conservative method of DNA replication was proved by

(a) Watson and Crick ()

(b) Meselson and Stahl ()

(c) Jacob and Monod ()

(d) Sutton and Boveri ()

3. The 3 -OH of one nucleotide is linked to 5 phosphate of the next nucleotide by

(a) phosphodiester bond ()

(b) hydrogen bond ()

(c) peptide bond ()

(d) disulphide bond ()

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(3)

4. Which one of the following is an example of codominance?

(a) ABO blood group in man ()

(b) Eye colour in *Drosophila* ()

(c) Kernel colour in wheat ()

(d) Coat colour of Shorthorn breed of cattle ()

5. When an abnormal egg with XX chromosome is fused with normal sperm carrying Y chromosome, it results in

(a) Turner's syndrome ()

(b) Down's syndrome ()

(c) Patau's syndrome ()

(d) Klinefelter's syndrome ()

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(4)

SECTION—B

(Marks : 15)

Write short notes on the following in not more than 5 to 8 sentences each :

3×5=15

1. Nucleosome

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(5)

2. Semi-discontinuous replication

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(6)

3. Initiation complex of protein synthesis

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(7)

4. Epistasis

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(8)

5. Crossing-over

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