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M.Sc. (II Semester) Examination, 2019

ZOOLOGY

Paper Z-08

(Genetics)

Time Allowed : Three Hours

Max. Marks : 70

Min. Pass Marks : 28

This question paper will be divided into ***three*** *sections as under :*

Section-A ***Max. Marks-10***

Will carry ***10*** *marks with* ***one*** *compulsory question comprising* ***10*** *short answer type questions (maximum* ***20*** *words answer) taking two questions from each unit. Each question shall be of one mark.*

Section-B ***Max. Marks-25***

Will carry ***10*** *questions,* ***02*** *questions from each unit (answer about in* ***250*** *words). Students are instructed to attempt* ***five*** *questions by selecting* ***one*** *question from each unit.*

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Section-C ***Max. Marks-35***

Will carry ***35*** *marks with* ***five*** *long answer type questions comprising one compulsory question (Question No. 7) of* ***15*** *marks and four questions of* ***10*** *marks each. Students are instructed to attempt total three questions with* ***one*** *compulsory question (answer about in* ***500*** *words) and any* ***two*** *more questions (answer about in* ***400*** *words) out of remaining four questions.*

SECTION-A

(i)	What are allosomes ?	1
(ii)	Differentiate genotype from phenotype.	1
(iii)	What do you mean by multiple allele ?	1
(iv)	What are transposons ?	1
(v)	Name a sex influenced character.	1
(vi)	What is euthenics ?	1
(vii)	How are z-DNA different from B-DNA ?	1
(viii)	What is the function of topoisomerase ?	1
(ix)	What are chaperons ?	1
(x)	What are ribozymes ?	1

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SECTION-B

UNIT-I

2. Explain the significance of Back-cross. 5

Or

Write short notes on any *two* of the following : 2½+2½

(*i*) Homologous chromosomes

(*ii*) Hemizygous condition

(*iii*) Symbols in genetic cross.

UNIT-II

3. Describe incomplete dominance with the help of example. 5

Or

Write short notes on any *two* of the following : 2½+2½

(*i*) Law of independent assortment

(*ii*) Linkage groups

(*iii*) Accessory genetic elements.

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UNIT-III

4. Explain chromosomal basis of sex determination with examples. 5

Or

Write short notes on any *two* of the following : 2½+2½

(*i*) Criss-cross inheritance

(*ii*) Down's syndrome

(*iii*) Genetic counselling.

UNIT-IV

5. Explain the process of DNA replication. 5

Or

Write short notes on any *two* of the following : 2½+2½

(*i*) DNA repair

(*ii*) Hn RNA

(*iii*) RNA polymerase.

UNIT-V

6. What do you mean by positive and negative gene regulation ? Explain with examples. 5

Or

Write short notes on any *two* of the following : 2½+2½

(*i*) Tryp Operon

(*ii*) Gene regulatory protein

(*iii*) RNA interference.

SECTION-C

7. Compulsory Question :

What is the importance of eugenics ? Explain positive and negative eugenics. 15

8. Explain the mechanism of crossing-over. 10

9. Describe the post-replicative changes in h_n RNA. 10

10. Give an account on the structure and types of RNA. 10

11. What is the principle of RFLP ? Describe the steps involved in RFLP. 10

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