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(November)

ZOOLOGY

(Major)

Course : 501

(Genetics and Evolution)

Full Marks : 48

Pass Marks : 19

Time : 2 hours

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

1. (a) Choose and write the correct answer :

1×4=4

- (i) Interaction between non-allelic genes where one gene suppresses the expression of other gene is called epistasis/incomplete dominance/allelic complementation.
- (ii) Holandric genes are located on X chromosome/Y chromosome/Z chromosome of human.

(iii) The Hardy-Weinberg law is associated with developmental genetics/population genetics/evolutionary genetics.

(iv) Lamarck's third law on use and disuse of organ is rejected/accepted/modified.

(b) Differentiate between : $2 \times 4 = 8$

(i) Independent assortment and Linkage

(ii) Autosome and Sex chromosome

(iii) Allopatric speciation and Sympatric speciation

(iv) Genome and Gene pool

2. Define Mendel's law of dominance and explain with example that it is not always true.

$2 + 5 = 7$

Or

What is Mendel's monohybrid ratio? Explain with example that modification is produced in monohybrid ratio by lethal factors.

$1 + 6 = 7$

3. What is sex-linked inheritance? Illustrate inheritance of colour blindness in a cross between carrier female and normal male.

$2 + 6 = 8$

(3)

Or

Explain the following : 4×2=8

(a) Cytoplasmic inheritance

(b) Gene mapping

4. What is gene? Explain the eukaryotic gene with diagram. 1+6=7

Or

What is inborn error? Explain some inborn errors in metabolism. 1+6=7

5. Explain the role of mutation in evolution. 7

Or

Why is Darwin's theory called the theory of natural selection? Discuss the demerits of Darwin's theory. 4+3=7

6. What is gene frequency? Explain the Hardy-Weinberg law. 2+5=7

Or

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

(a) Continental drift

(b) Convergent evolution

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