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5 SEM TDC ZOOH (CBCS) C 12

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(Nov/Dec)

ZOOLOGY

(Core)

Paper : C-12

(Principle of Genetics)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. Fill in the blanks : 1×5=5
- (a) A gene that has multiple effects on the phenotype is called a ____ gene.
 - (b) In case of honeybee, the mechanism of sex-determination is of ____ type.
 - (c) Hemophilia is a ____ recessive disorder.
 - (d) Recessive gene can be expressed only in ____ condition.
 - (e) Linkage in *Drosophila* was first discovered by ____.

(2)

2. Write short notes on any two of the following : $3 \times 2 = 6$

(a) Polygenic inheritance

(b) Law of segregation

(c) Multiple alleles

(d) Incomplete dominance

3. Answer any six from the following : $7 \times 6 = 42$

(a) Define linkage. Discuss the chromosomal theory of linkage. $1 + 6 = 7$

(b) What is aneuploidy? Discuss two chromosomal aberrations caused due to chromosomal aneuploidy. $1 + 6 = 7$

(c) Name the modes of recombination of genes in bacteria. Describe the process of transduction in viruses. $2 + 5 = 7$

(d) Explain the molecular basis of chromosomal aberration with suitable example. 7

(e) Explain the mechanism of mitochondrial inheritance using proper illustration. 7

(3)

(f) What do you mean by criss-cross inheritance? Describe the inheritance of haemophilia in human. $2 + 5 = 7$

(g) What is epistasis? Discuss dominant epistasis with example. $2 + 5 = 7$

(h) Discuss the role of P elements in *Drosophila*. Write a note on transposons in humans. $4 + 3 = 7$

(i) What are mutagens? Briefly discuss the molecular basis of mutation in relation to UV light. $2 + 5 = 7$
