

**2024/TDC (CBCS)/EVEN/SEM/
ZOODSC/GEC-401T/020**

TDC (CBCS) Even Semester Exam., 2024

ZOOLOGY

(4th Semester)

Course No. : ZOODSC/GEC-401T

(Genetics and Evolutionary Biology)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

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

UNIT—1

1. Answer any three of the following questions :

1×3=3

- (a) What is dominant allele?
- (b) What is self-fertilization?
- (c) Define pleiotropy.
- (d) What are chiasmata?

(2)

2. Answer any one of the following questions : 2

(a) What is back-cross? State its significance.

(b) Define law of segregation.

3. Answer any one of the following questions : 5

(a) Write short notes on any two of the following : $2\frac{1}{2} \times 2 = 5$

(i) Incomplete dominance

(ii) Multiple alleles

(iii) Law of independent assortment

(b) What do you understand by extra-chromosomal inheritance? Describe it with examples. $1+4=5$

UNIT—2

4. Answer any three of the following questions : $1 \times 3 = 3$

(a) Define linkage.

(b) Define chiasma.

(c) Write the name of an organism in which no crossing-over is observed.

(d) What is crossing-over?

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(Continued)

(3)

5. Answer any one of the following questions : 2

(a) Mention the factors which influences the process of crossing-over.

(b) Write the biological significance of crossing-over.

6. Answer any one of the following questions : 5

(a) Write in detail about any two theories of linkage. Add a note on the significance of linkage. $4+1=5$ (b) Discuss any two theories of crossing-over with illustration. $2\frac{1}{2}+2\frac{1}{2}=5$

UNIT—3

7. Answer any three of the following questions : $1 \times 3 = 3$

(a) Define spontaneous mutation.

(b) What is Monosomy?

(c) What is nonsense mutation?

(d) What do you understand by chromosomal aberration?

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(Turn Over)

(4)

8. Answer any *one* of the following questions : 2

- (a) Mention the significance of mutation in nature.
- (b) Mention the different types of chromosomal inversions.

9. Answer any *one* of the following questions : 5

- (a) What are the different types of structural changes that occur in chromosome due to mutation? Briefly explain different types of translocation mutation with illustration. $2+3=5$

- (b) Write short notes on the following : $2\frac{1}{2}\times 2=5$

(i) Polyploidy

(ii) Mutagen

UNIT—4

10. Answer any *three* of the following questions : $1\times 3=3$

- (a) Who was Lamarck?
- (b) Define palaeontology.
- (c) Name the book written by Darwin.
- (d) What is radio carbon dating?

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(5)

11. Answer any *one* of the following questions : 2

- (a) What are fossils? Name different types of fossil.
- (b) Define Darwinism.

12. Answer any *one* of the following questions : 5

- (a) Write a detailed note on phylogeny of horse.
- (b) Write short notes on the following : $2\frac{1}{2}\times 2=5$

(i) Neo-Darwinism

(ii) Theory of inheritance of acquired characters

UNIT—5

13. Answer any *three* of the following questions : $1\times 3=3$

- (a) Define the term 'Evolution'.
- (b) What is geographical isolation?
- (c) Define species.
- (d) What do you understand by the term 'Natural Selection'?

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(Turn Over)

(6)

14. Answer any *one* of the following questions : 2

- (a) Write the significance of variations in nature.
- (b) Mention two limitations of biological species concept.

15. Answer any *one* of the following questions : 5

- (a) Briefly discuss the different types of Natural Selection with example. Add a note on the significance of Natural Selection. 3+2=5
- (b) Write short notes on the following : 2½×2=5
 - (i) Industrial melanism
 - (ii) Artificial selection

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