2023/TDC(CBCS)/EVEN/SEM/
ZOODSC/GE–401T/260

TDC (CBCS) Even Semester Exam., 2023

ZOOLOGY

(4th Semester)

Course No. : ZOODSC/GE–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*

SECTION—A

Answer any *fifteen* of the following questions :

1×15=15

1. Define backcross.

2. What is monohybrid cross?

3. What do you understand by incomplete dominance?

J23/583 *(Turn Over)*

(2)

4. Define the term 'epistasis'.

5. Give one example of codominance.

6. What are linkage group?

7. At which stage of cell division crossing over occurs?

8. What do you understand by the term 'interference'?

9. Define the term 'mutation'.

10. What is polyploidy?

11. What is translocation mutation?

12. Define somatic mutation.

13. Name the theory proposed by Lamarck.

14. Who was Darwin?

15. Define the term 'Palaeontology'.

(3)

16. Name two methods for determining the age of fossils.

17. Define isolation.

18. What are chiasmata?

19. What is speciation?

20. What is allopatric speciation?

SECTION—B

Answer any *five* of the following questions :   2×5=10

21. What is dihybrid cross? What is its significance?

22. Define codominance with example.

23. Write down the significance of linkage.

24. Define crossing over.

25. What are the different types of chromosomal aberrations in terms of structural changes?

26. What is germinal mutation and where do they occur generally?

27. What is Neo-Darwinism?

28. What are fossils? Name different types of fossils.

29. Mention the significance of isolating mechanisms in nature.

30. Write two advantages of biological species concept.

SECTION—C

Answer any *five* of the following questions :   5×5=25

31. Who was Mendel? Explain the Law of Independent Assortment with the help of an example.

32. Write short notes on any *two* of the following :   2½×2=5

  (a) Multiple alleles

  (b) Sex-linked inheritance

  (c) Pleiotropy with example

33. Define linkage. What are the different types of linkage? Add a note on the chromosomal theory of linkage.   1+1+3=5

34. Write short notes on the following :   2½×2=5

  (a) Theories of crossing over

  (b) Three-factor cross

35. What is chromosomal mutation? Briefly explain the duplication and inversion mutation with illustration.   1+4=5

36. Define point mutation. What do you understand by basic pair substitution-mutation? Add a note on frame shift mutation.   1+2+2=5

37. Write short notes on any *two* of the following :   2½×2=5

  (a) Lamarckism

  (b) Fossils as evidence of evolution

  (c) Darwin and his theory of natural selection

38. Write a detailed note on phylogeny of horse.

39. Discuss different premating and post-mating isolating mechanisms with examples.

(**6**)

40. Write short notes on any *two* of the following : 2½×2=5

(a) Industrial melanism as an example of natural selection

(b) Artificial selection

(c) Sympatric speciation

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