2022/TDC (CBCS)/EVEN/SEM/
ZOODSC/GEC-401T/091

TDC (CBCS) Even Semester Exam., 2022

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

SECTION—A

Answer any *fifteen* of the following questions : 1×15=15

1. What are alleles?

2. Define the term 'dominance'.

3. What do you understand by dihybrid cross?

4. Give one example of codominance.

5. What are linked genes?

6. Who established the principle of linkage?

7. What are chiasmata?

8. Define gene mapping.

9. Who coined the term 'mutation'?

10. What is aneuploidy?

11. Define induced mutation.

12. Why is gene mutation also known as point mutation?

13. Name the theory of evolution put forward by Lamarck.

14. Name the book written by Darwin where he has explained his theories of evolution.

15. Who is known as the 'father of paleontology'?

16. What are fossils?

17. Define variation.

18. What do you understand by geographical isolation?

19. Who put forward the concept of natural selection?

20. Define species.

SECTION—B

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

21. Why did Mendel select pea plants for his experiments?

22. What is test cross and why is it performed?

23. Name the kinds of linkage found in nature.

24. Name the factors which affect the process of crossing over.

25. Write the difference between aneuploidy and polyploidy.

26. What do you understand by suppressor mutation and where do they occur generally?

27. Define neo-Darwinism.

28. What is radiocarbon dating?

29. Define the phenomenon of industrial melanism with an example.

30. Write a note on the significance of speciation in nature.

SECTION—C

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

31. Who proposed the chromosomal theory of inheritance? Give an account of the chromosomal theory of inheritance. 1+4=5

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

(a) Incomplete dominance

(b) Mechanism of epistasis

(c) Extra-chromosomal inheritance

33. What are linkage groups? Briefly explain the chromosomal theory of linkage. Add a note on the significance of linkage. 1+3+1=5

34. Explain the mechanism of crossing over with proper illustrations. 4+1=5

35. What is chromosomal aberration? Briefly explain the inversion and translocation mutation with proper illustrations. 1+4=5

36. What are mutagens? How do they induce gene mutation? Add a note on the importance of mutations. 1+3+1=5

37. Write a detailed note on the phylogeny of horse. 5

38. Give an account of the hypothesis of 'inheritance of acquired characters' put forward by Lamarck with proper example. 5

39. What is isolation? Discuss various isolating mechanisms found in nature. 1+4=5

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

(a) Directional natural selection

(b) Difference between allopatric and sympatric speciation

(c) Limitations of biological species concept

(d) Artificial selection

★★★