OLD

2015

Part-I 3-Tier

ZOOLOGY

PAPER—II

(Honours)

Full Marks : 90

Time : 4 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer *all* questions.

Group—A

Answer any *two* of the following questions. 2×15

1. (i) What are the differences between A, B and Z DNA. 7

(ii) How can you prove that DNA replication is bidirectional ? 4

(iii) How fidelity of DNA replication is maintained ? 4

2. (i) Briefly describe the ultrastructure and function of Golgi complex with suitable diagram.

(ii) Differentiate between Prokaryotic and Eukaryotic Ribosome.

(iii) What is ribozyme ?

(iv) Define nuclear organiser. 6+4+3+2

3. (i) Describe the diversities of coloration found in animals and state its significance. 8

(ii) Distinguish between rER and sER. Name two enzymes of mitochondrial matrix. 4+3

4. (i) What is placenta ? What type of Placenta is found in man and rabbit ?

(ii) Which extra embryonic membrane in chick developed first ? Mention its' function.

(iii) Define epiboly and emboly.

(iv) What do you mean by primary and secondary organiser? (2+3)+(1+2)+4+3

5. (i) What do you mean by Typological species concept? Mention its' limitation.

(ii) Define Homonamy and Toutonamy.

(iii) Mention scientific name of four endemic Ethiopian mammal.

(iv) What is Wallace line?

6. (i) How desert animals are adapted to temperature extremities? Explain with examples. 8

(ii) How do dominance relations, multiple allelic system and gene interaction generates variability among population. 7

Group—B

Answer any *five* of the following. 5×8

7. Explain the Miller's experiment in support of the modern theory of the chemical basis of 'Origin of life'. What are the sources of energy in primitive environment? 6+2

8. (a) What do you mean by choriovitelline and chorio-allantoic Placenta ? Give an example of each type of Placenta.

   (b) What do you mean by area opuca and area pellucida ?

5+3

9. Write short notes on : 4×2

   (a) Intron and Exon ;

   (b) Gene frequency and genotype frequency ;

   (c) Homonamy and Tautonamy.

10. (a) Write a note on Alpha, Beta and Gamma Taxonomy.

    (b) Define Sibling Species. 6+2

11. Give an account of adaptive features of desert mammals. 8

12. Describe the histoarchitecture of the different types of secretary cells found in anterior pituitary. Mention the cell types which are responsible for the secretion ACTH, TSH and prolactin. 5+3

13. Briefly describe the process of fractionation of subcellular components and their identification. 8

14. Discuss reptilian affinities of fossil and modern birds. 8

15. Write short notes on : 4+4

(a) Primosome complex ;

(b) Klenow fragment.

16. Describe the different stages of development of eye in chick with diagram. 8

Group—C

Answer any *five* of the following. 5×4

17. What do you mean by Founder effect and population bottleneck ? 4

18. Why tRNAs are called adaptor molecule ? 4

19. Differentiate between coagulant and non-coagulant fixative with suitable example for each. 4

20. Give a labelled diagram of tRNA. 4

21. Mention the structure of Telomere and Centromere. 4

22. Comment on the capacitation of mammalian sperm. 4

23. Write short notes on : 2+2

(i) Autophagosome ;

(ii) Coacervation.

24. What do you understand by determinate and indeterminate cleavage. 4

25. Define lectotype and neotype. 4

26. Write a short note on :
Prokaryotic Ori C. 4

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