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UG/I/ZOOL/H/II/16(New)

2016

ZOOLOGY

[Honours]

PAPER – II

Full Marks : 90

Time : 4 hours

The figures in the right hand margin indicate marks

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

Illustrate the answers wherever necessary

[NEW SYLLABUS]

GROUP – A

Answer two questions of the following : 15 × 2

1. (a) What is a centromere and how does it differ from kinetochore ?

(Turn Over)

- (b) What is Lampbrush Chromosome ? Mention its function.
- (c) Briefly state the functions of Golgi complex.
- (d) What is Chargaff's rule ? $(1 + 2) + 4 + 5 + 3$
2. (a) Explain 'Fast block' and 'Slow block' of polyspermy.
- (b) Define blastoderm and blastomere.
- (c) Mention the role of inhibin in spermatogenesis.
- (d) What is Hensen's node ? $4 + 3 + 4 + 4$
3. (a) Female *Drosophila* heterozygous for ebony (e^+/e), scarlet (st^+/st) spineless (ss^+/ss) were test crossed and the following progeny were obtained :

<u>Progeny phenotypes</u>	<u>Number</u>
wild type	67
ebony	8

<u>Progeny phenotypes</u>	<u>Number</u>
ebony, scarlet	68
ebony spineless	347
ebony, scarlet, spineless	78
scarlet	368
scarlet, spineless	10
spineless	54

- (i) Write the genotype of the flies involved in the parental cross and test cross.
- (ii) Construct the gene map of three loci.
- (iii) Calculate the coefficient of coincidence.
- (b) Elaborate 'one gene one polypeptide' concept. $(3 + 6 + 2) + 4$
4. (a) What do you mean by taxonomic character ?
- (b) Differentiate between systematics and taxonomy.
- (c) (i) Distinguish between aggressive and protective mimicry.
- (ii) Mention the significance of concealing colouration. $3 + 4 + 4 + 4$

5. (a) Distinguish between prokaryotic and Eukaryotic Ribosome.
- (b) Write a note on mt DNA.
- (c) Mention the function of Sn RNA.
- (d) What is F_1 particle ? $4\frac{1}{2} + 4\frac{1}{2} + 3 + 3$
6. Write short notes on any *three* of the following : 5×3
- (i) Grey crescent area
- (ii) Sibling species
- (iii) Founder effect
- (iv) Yolk plug
- (v) tRNA.

GROUP – B

Answer five questions of the following : 8×5

7. Discuss the origin of birds from reptilian stock. 8

8. Describe the faunal characteristics of Australian realm. 8
9. (a) Distinguish between holoblastic and meroblastic cleavage.
- (b) Distinguish between races and species. 4 + 4
10. (a) Define polylecithal and mesolecithal egg.
- (b) What are binomial and trinomial nomenclature? 4 + 4
11. (a) What is C-value paradox?
- (b) Explain Industrial melanism. 4 + 4
12. Mention the important organic events occurred during Mesozoic Era. 8
13. (a) Distinguish between complete and incomplete linkage.
- (b) Distinguish between nucleoside and nucleotide. 4 + 4

14. Describe spermeogenesis with different events occurred during this process. 8
15. (a) What is the significance of primitive streak formation ?
- (b) Define vitellogenesis. Describe the events occurred during vitellogenesis. (3 + 1) + 4
16. State the experiment of Miller and narrate the chemical basis of origin of life. 8

GROUP – C

Answer five questions of the following : 4 × 5

17. What is organiser ? Define primary and secondary organism. 1 + 3
18. Discuss ecological species concept. 4
19. (a) What is Barr body ?
- (b) What is hn RNA ? Is it a final gene product ? 2 + 1 + 1

20. Write short notes on : 2 + 2
- (i) Histone of nucleosome
 - (ii) GERL.
21. Mention the types of placenta according to the distribution of villi. 4
22. Define Coelom. Cite examples of acoelomate and pseudocoelomate organisms. 2 + 1 + 1
23. Define gene frequency and genotype frequency with example. 2 + 2
24. Write briefly the differences between pseudoalleles and multiple alleles. 4
25. State the basic features of 'Ice age'. 4
26. Mention the structure and function of Telomere. 4
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