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End Semester Examination of Semester-III, 2015

Subject : ZOOLOGY (HONS.) (UG)

Paper : ZHT-302 (Theory)

Full Marks : 40

Time : 2 Hrs

*The figures in the margin indicate the marks
corresponding to the question*

*Candidates are requested to give their answers
in their own word as far as practicable.*

Illustrate the answers wherever necessary

Group A

Answer any two out of four questions : 10x2=20

1. a) How does specialized transduction differ from generalized transduction? .
b) In man brown eyes (B) are dominant over blue (b). A brown eyed man married to a brown eyed woman has blue eyed child. Explain what would be the genotypes of the parents?
c) Write a brief note on the principle and uses of ELISA. 3+4+3
2. a) Distinguish between heterozygous and hemizygous situation. 2
b) Compare and contrast linkage and Independent Assortment. 4

- c) Distinguish between Innate and Acquired Immunity. 4
3. a) Write a short account on IgG. 3
b) What do you mean by opsonisation? 2
c) How NK cells recognize & kill self cells? 3
d) How do suppressor genes differ from epistatic genes? 2
4. a) Describe Genic balance theory of Sex determination in *Drosophila*. 5
b) State the role of non-disjunction in the formation of aneuploid situation. 2
c) What is tetrad? Mention its significance. 2+1

Group B

Answer any two out of four questions : 5×2=10

5. A homozygous *claret* (*ca*, claret eye color), *curled* (*cu*, upcurved wings), *fluted* (*fl*, creases wings) fruit fly is crossed with a pure-breeding wild-type fly. The F₁ females are test-crossed with the following results :

fluted : 4

claret : 173

curled : 26

fluted, claret : 24

fluted, curled : 167

claret, curled : 6

fluted, claret, curled : 298

wide-type : 302

(3)

- i) Are these loci linked?
 - ii) If so, give the gene order, map distances, and co-efficient of coincidence. 5
6. What is an episome? Briefly explain the differences between F⁺, F⁻, Hfr, and F' cells. 1+4
7. a) Differentiate mtDNA & cpDNA. You have blood group B+, explain whether it is your genotype or phenotype. 3
- b) Compare among different classes of MHC molecules. 2
8. What is a lethal allele? What are the types of frame shift mutations? 2+3

Group C

Answer any five out of ten questions : 2x5=10

9. How sex is determined in *Bonellia* sp.
10. What is meant by Robertsonian translocation?
11. Classify lymphoid organs in outlines.
12. Name two disorders related to the mutation in mtDNA.
13. Compare expressivity and penetrance.
14. What do you mean by polygenic inheritance?

(4)

15. Define adjuvants with examples.
 16. Differentiate between agretope & epitope.
 17. Haemotopoietic Stem cells (HSC) are multipotent cells — explain.
 18. What are multiple alleles?
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