

2023
M.Sc.
First Semester
CORE – 01
ZOOLOGY
Course Code: MZOC 1.11
(Genetics & Cytogenetics)

Total Mark: 70
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

UNIT-I

1. What is organelle heredity? Explain with reference to *Chlamydomonas* and *Saccharomyces*. 2+6+6=14
2. Elaborate on genome size and its complexity. Discuss the organization of chromosomes in prokaryotes. 6+8=14

UNIT-II

3. Write notes on the following: 7×2=14
 - (a) 2 Point test cross
 - (b) Interference
4. Discuss the concept of somatic cell genetics. Add a note on its application. 9+5=14

UNIT-III

5. Write notes on the following: 7×2=14
 - (a) Sickle cell anemia
 - (b) Cystic fibrosis
6. Explain the types of chemical mutagens with examples. 14

UNIT-IV

7. Describe dosage compensation and inactivation of *x*-linked genes in mammals. 8+6=14
8. What is transduction? Discuss the types of transductions. Add a note on sex determination in *C. elegans*. 2+8+4=14

UNIT-V

9. Explain the role of chromosome rearrangements and cancer. Add a note on p53. 10+4=14
10. Write notes on the following: 7×2=14
- (a) Role of oncogenes
 - (b) Wilm's tumour
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