

## **Second Semester M.Sc. Degree Examination (CSS)- Zoology**

**ZY2CT07      Course VII - GENETICS AND BIOINFORMATICS**

**Time: 3Hours**

**Total Weight: 30**

### **Section I -Short answer type questions**

**Weight -1**

**Answer any 10 out of 12**

1. What is Quantitative Trait Locus (QTL)?
2. Define R-loops.
3. What is Cot curve?
4. List sex limited and sex influenced characters in man.
5. What are interrupted genes? Comment on its functions.
6. What are CEN regions?
7. Distinguish between epistasis and pleiotropy.
8. What is criss-cross inheritance? Give an example.
9. Define e-value in BLAST.
10. Comment on sequence annotation.
11. What is *ab-initio* structure prediction?
12. Write a short note on e-cell project.

### **Section II-Short essay type questions**

**Weight-2**

**Answer any 5 out of 8**

13. Differentiate between incomplete penetrance and variable expressivity.
14. Give a brief account on *Alu* sequences.
15. Describe the molecular structure of telomere and its significance.
16. Explain DNA repair mechanisms.
17. How does *Polycomb group* in *Drosophila* bring about gene silencing?
18. Describe the steps involved in structure based drug design.
19. Discuss the Law of Independent Assortment with suitable examples.
20. Describe various methods of protein structure prediction.

### **Section III- Long essay type questions**

**Weight -5**

**Answer any 2 out of 3**

21. Explain the molecular mechanisms and the Holliday model of chromosomal crossing over.
22. Elucidate the unique aspects of eukaryotic DNA replication.
23. Write an essay on proteomic databases.