

2012

B.Sc. (Hons.) Biotechnology

Third Semester

BIOT-302-T: Genetics

Time allowed: 3 Hours

Max. Marks: 67

**NOTE:** Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

I. Answer the following:-

- a) What are linked genes? Explain. (4)
- b) What is reason for variation in Mendel Law? (4)
- c) What is criss-cross inheritances in X-linked genes? (4)
- d) Name and discuss two genetic disorders briefly. (3)

**UNIT – I**

- II. a) How did Mendel arrive at law of segregation?  
b) What are important genes on chloroplast genome? (7,6)
- III. a) What are frequencies obtained in dihybird cross?  
b) What is special about X-linked disorder? (6,7)

**UNIT – II**

- IV. a) Describe process of genetic recombinations.  
b) Discuss the principles of linkage analysis. (7,6)
- V. a) How are genes mapped and represented?  
b) What is test cross and its use? (6,7)

**UNIT – III**

- VI. a) Discuss mechanism of DNA repair.  
b) Discuss some genetic aberrations? (7,6)
- VII. a) What is transversion and transition and their effects?  
b) Discuss genetic basis of cancer. (6,7)

P.T.O.

**UNIT – IV**

- VIII. a) What is significance of chi-square test?  
b) What is importance of Hardy-Weinberg equilibrium? (7.6)
- IX. a) What is role of plasmids in bacteria?  
b) What are symbols used in pedigree analysis and make one chart and explain. (6.7)

X-X-X