



- Notes : 1. All questions are compulsory and carry equal marks.  
2. Draw diagram wherever necessary.

1. Define Mendel's three laws of inheritance. Explain law of dominance with example. **10**

**OR**

Explain the molecular mechanism of crossing over. **10**

2. Explain numerical chromosomal abnormalities with respect to poly ploidy. Briefly describe down syndrome. **10**

**OR**

Describe the principle of Hardy Weinberg equilibrium and write its significance. **10**

3. a) Describe non-allelic gene Interaction. Explain 12:3:1 ratio with example. **2½**

b) Explain the sex determination by chromosome. **2½**

c) Write a note on duplication of genes. **2½**

d) Write a note on genotype frequencies. **2½**

**OR**

e) Explain incomplete dominance. **2½**

f) Explain the concept of linkage **2½**

g) Write a note on chromosomal aberration its plants. **2½**

h) Briefly describe about genetic disorder. **2½**

4. a) What is genotype? Explain genotypic ratio. **2½**

b) Explain how meiosis effects variations. **2½**

c) Describe translocation of gene with example. **2½**

d) Explain how natural selection affects the equilibrium. **2½**

**OR**

e) Explain co-dominance of blood groups in humans.

- f) Explain Holiday junction.
- g) Describe chromosomal deletion with example.
- h) Write a note on mitochondrial inheritance.

**5. Answer any ten.**

- a) Define epistasis. 1
- b) What are alleles? 1
- c) Name the plant which Mendel studied for his experiment. 1
- d) What is coupling? 1
- e) Give two significance of crossing over. 1
- f) Who discovered Linkage? 1
- g) How many chromosomes are there in Klinefelter syndrome? 1
- h) Name any two structural abnormalities in chromosome. 1
- i) What is other name of chromosomal aberration? 1
- j) What is gene pool? 1
- k) Name the genetic disorder which is autosomal recessive. 1
- l) Define gene flow. 1

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