

## **GENETICS**

### **Unit I**

Genes and environment, Genetic Variation, Mendel's Experiments, Genetic Ratios, Sex Determination and Sex-linked inheritance, Elementary idea of Human genetics, Mendelian pedigree patterns in humans.

### **Unit II**

Mendelian Genetics in Eukaryotic life cycles, Chromosome Structure, Topography of Chromosomal set, Polytene and lampbrush chromosomes.

### **Unit III**

DNA damage – mechanism of repair – excision repair

### **Unit IV**

Organization of chromosomes, specialized chromosomes, chromosomal abnormalities, population genetics, gametic cell genetics, crossing over, Epistasis, chromosome mapping, gene linkage, tetrad analysis.

### **Unit V**

Types and structure of plasmids, plasmid transfer and their applications, Insertion sequence in prokaryotes Transposons – discovery and characterization.

### **Suggested Readings:**

- 1 Griffiths, Anthony J.F.; Miller, Jeffrey H.; Suzuki, David T.; Lewontin, Richard C.; Gelbart, William M. Introduction to Genetic Analysis New York: W. H. Freeman & Co.; c1999.
- 2 Griffiths, Anthony J.F.; Gelbart, William M.; Miller, Jeffrey H.; Lewontin, Richard C. Modern Genetic Analysis, New York: W. H. Freeman & Co.; c1999.
- 3 Strachan, Tom and Read, Andrew P. Human Molecular Genetics. Oxford, UK: BIOS Scientific Publishers Ltd; 1999.
- 4 M W Strickberger Macmillan publishing co. 1985.