

GENETICS AND EVOLUTION

UNIT 1

Principle and laws of Mendelian inheritance – Genetic interactions – Multiple alleles – Sex determination – Sex limited and sex-linked inheritance – Non disjunction.

UNIT II

Modern concepts of Pro and Eukaryotic genes – Regulation of gene expression – Lac and Trp Operon - Chromosome mapping: Linkage and Genetic mapping – Estimation of map distance.

UNIT III

Human Genetics: Gene (point) mutation – Mutagens – Teratogens & Induced birth defects – In born errors of metabolism – Human Karyotype, Chromosomal variations and syndromes in man.

UNIT IV

Origin of life: Molecular evolution – Concepts and theories of Organic evolution – Mechanisms producing genetic diversity – Phylogenetics using Morphometric, biochemical and molecular tools.

UNIT V

Genes in Population – Hardy Weinberg equilibrium – Genetic drift – Evolutionary forces – Isolating mechanism and speciation – Adaptive radiation.

Text Books

1. Veer Bala Rostogi -A textbook of Genetics, Kedar Nath Ram Nath, Meerut, 1992.
2. P.S. Verma and V.K. Agarwal, Genetics, S.Chand and co.Ltd. New delhi, 2001.
3. P.S. Verma and V.K. Agarwal, Concept of evolution, S.Chand & Company Ltd., 1998.
4. Veer Bala Rostogi, Evolution.

Reference Books

1. Robert H.Tamarin, *Principle of Genetics*, The McGraw Hill companies, Inc., 1999.
2. P.K. Gupta, *Genetics*, Rostogi publications, 1997.
3. Strickberger Manroe, W., *Genetics*, Jones & Barlett Publishers, 1996.
4. Karvita B. Ahluwalia, *Genetics*, New age International (P) Ltd., 1996.
5. Strickberger, M.W, *Evolution*, Jones & Barlett Publishers, 1996.
6. Edwin H Colbert, *Evolution of the Vertebrates*.
7. R.A. Raff, T.C. Kaufman, Embryos, *Genes, and Evolution*, Macmillan Publishing Co., Inc., 1983.