

Biology – 1 (Semester 2)

Principles of Animal and Plant Life

Introduction:

Scope of Biology, Organization of the biosphere, Scientific method.

Chemical basis of Life:

Organic molecules, Carbohydrates, Proteins, Lipids and nucleic acids.

Structure and Function of Cell:

Prokaryotic and eukaryotic cell, Cell organelles, Cell cycle, Mitosis and Meiosis.

Chromosomes and Gene Linkage

Eukaryotic chromosome, Linkage and crossing over, Chromosomal aberration.

Genetics

Mendelian Inheritance pattern, Gene expression, Gene mutations, DNA as a genetic material, Application of genetic technologies, Recombinant DNA.

Enzymes

Structure, types and enzyme action.

Ecology

Importance and types of ecology, Ecosystem concepts, Abiotic and biotic components of ecosystem, Terrestrial, Marine and Freshwater ecosystem, Biomes.

Practical:

Tests for carbohydrates, proteins and lipids. Study of Mitosis and Meiosis. Measurement of cell. Problem based study of Mendelian ratios. Study of genetic maps, Pedigree analysis. Study of different ecosystem.

Books Recommended:

Allison, L. (2011). Fundamental molecular biology. 2th Edition. Wiley and Black Publishing.

Campbell, N.A. and Reece, J. B. (2008). Biology. 8th Edition. Menlo Park, California. Benjamin/Cummings Publishing Company, Inc.

De-Roberties, E.D.P. & De-Roberties, Jr. E.N. (1987). Cell and Molecular Biology. Lea and Febiger, New York.

Hickman, C. Jr., Keen, S., Larson, A., Eisenhour, D., Ansen, H., & Roberts, L. (2014). Integrated Principles of Zoology. 16th Edition (International). Singapore: McGraw Hill Inc. New York.

Sinnoth, C. W., Dunn, L. & Dobzhansky. (1958). Principles of genetics. 5th edition. McGraw Hill Inc. New York.