M.Sc. – Semester I Microbiology and Biotechnology
PAPER: (MB/BT) **404**: TAXONOMY
[CSIR – UGC – NET - TOPIC: 9]

Total Credits – 3 **Total Hours – 45**

Objectives:

- To understand the classification, organization and interrelation of various parts of animals, plants and microorganisms according to their natural relationships.

Unit – 1: Diversity of life forms

Principles and methods of taxonomy: Concepts of species and hierarchical taxa, biological nomenclature, classical & quantitative methods of taxonomy of plants, animals and microorganisms.
Levels of structural organization: Unicellular, colonial and multicellular forms. Levels of organization of tissues, organs & systems. Comparative anatomy, adaptive radiation, adaptive modifications.

Unit – 2: Biological classifications and history of indian subcontinents

Outline classification of plants, animals & microorganisms:
Important criteria used for classification in each taxon. Classification of plants, animals and microorganisms. Evolutionary relationships among taxa.
Natural history of Indian subcontinent: Major habitat types of the subcontinent, geographic origins and migrations of species. Common Indian mammals, birds. Seasonality and phenology of the subcontinent.

Unit – 3: Organisms of health and agriculture

Organisms of health and agricultural importance: Common parasites and pathogens of humans, domestic animals and crops.
Organisms of conservation concern: Rare, endangered species. Conservation strategies.

References:

1. Campbell Biology Campbell Biology: Concepts & Connections Hardcover – by Martha Taylor , Eric Simon, Jean Dickey, Kelly Hogan, Jane Reece, Publisher Pearson, 2018, Ninth Edition.
2. Life Science: Fundamentals and Practice Part 1 Pranav Kumar and Usha Mina Pathfinder Publication 7th Edition.
3. Life Science: Fundamentals and Practice Part 2 Pranav Kumar and Usha Mina Pathfinder Publication 7th Edition.
4. Biology- Raven Johnson, Publisher William C Brown Pub, 2017, Twelfth Edition.
5. Prescott's Microbiology - Book by Christopher J. Woolverton, Joanne Willey, and Linda Sherwood, Publisher McGraw-Hill, 2011, Eighth Edition.