

negative stains), structural stains - spore, capsule, flagella. Hanging-drop method. Types, principles and applications of various techniques: Microscopy- Bright field, Dark field, Fluorescent, Phase Contrast microscopy, TEM and SEM.

Unit-IV

Nutritional groups of microorganisms - autotrophs, heterotrophs, mixotrophs, methylotrophs.

Growth media - synthetic, nonsynthetic, selective, enrichment and differential media.

Isolation of pure culture techniques - Enrichment culturing, dilution-plating, streak-plate, spread-plate and micromanipulator. Preservation of microbial cultures - sub culturing, overlaying cultures with mineral oils, lyophilization, sand cultures, storage at low temperature (ultra low temperature).

Unit-V

General characteristics of bacteria, archaeobacteria, actinomycetes.

General characteristics, rickettsia, mycoplasmas.

Morphology, structure and replication of TMV, HIV and lambda bacteriophage.

Ultra structure of a bacterial cell: Invariant components - cell wall, cell membrane, ribosomes, nucleoid. Variant components- Capsule, flagella, fimbriae, endospore and storage granules.

PRACTICALS CREDITS -1

MBP-101 Introductory Microbiology, Microbial Techniques and Biology of Microorganisms

1. Precautions to work in Microbiology laboratory.
2. Preparation of culture media: Solid / Liquid.
3. Isolation of single colonies on solid media.
4. Enumeration of bacterial numbers by serial dilution and plating- spread and streak.
5. Light and compound microscope and its handling.