PAPER I: FUNDAMENTALS OF MICROBIOLOGY
SEMESTER : II

UNIT	TOPIC	NUMBER OF LECTURES
I	**CHEMICAL BASIS OF LIFE-I** **a)** Water: Structure and interactions **b)** Study of carbohydrates. i. Types of sugars-Monosaccharide-aldoses, ketoses, classification and isomerism in carbohydrates, anomers and enantiomers of sugars.. ii. Glycoside bonds-α,1-4; β,1-6 etc. iii.Disaccharides with examples, polysaccharides-linear, branched, heterpolysaccharides and homopoysaccharides with examples. **iv.**Chemical properties of carbohydrates	**10** **2** **8**
II	**CHEMICAL BASIS OF LIFE-II** a) Study of amino acids and proteins. i) Concept of zwitterions. ii)Classification of amino acids and proteins. iii) Chemical properties of amino acids and proteins. b) Study of nucleic acids. i) Structural building blocks of nucleic acids. ii) Types of nucleic acids. iii) Chemical properties of nucleic acids. c) Study of lipids. i)Structural building blocks of lipids-glycerol, fatty acids, ii) Types of lipids- simple lipids, complex lipids and steroids- definition and examples. **iii)** Chemical properties of lipids.	**10** 4 3 3
III	**STUDY OF SELECTED GROUPS OF MICROORGANISMS.** **a)** Study of viruses. i) General characteristics of animal, plant and bacterial viruses. ii) Cultivation of viruses. iii) Life cycle of λ phage. **b)** Study of Rickettsia and Chlamydia-cytological and physiological features	**10** **7** 3

PRACTICALS
FUNDAMENTALS OF MICROBIOLOGY

PAPER : I

SEMESTER: II

1. Qualitative tests for carbohydrates-Benedict's, Molisch's.
2. Qualitative test for proteins- Biuret test
3. Qualitative test for amino acids- Ninhydrin reaction
4. Qualitative test for RNA-Orcinol test, for DNA- Diphenyl amine reaction.
5. Measurement and adjustment of pH of media using pH paper.
6. Demontration of bacteriophage plaque assay.
7. Demonstration of viral haemaggltination in microtitre plate.
8. Cultivation of animal viruses- Assignment