

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
CHEM-419	Biochemistry (Sp. Theory- II)	4	VII
Year	Discipline		
4	Chemistry		

SYLLABUS OUTLINE:

1. Biochemistry of Body Fluids:

General composition of Blood, blood plasma, blood proteins, formed elements of blood. Biosynthesis and metabolism of Porphyrin and Hemoglobin. Gaseous transport. Coagulation of blood. Normal and Abnormal composition of Urine and its Biochemical effects. Composition of CSF.

2. Immunochemistry:

The immune system. Detailed structure, chemistry and synthesis of immunoglobulins. Myeloma and hybridoma immunoglobulins. Immungenes. Complement system. Inflammatory process. Peripheral leucocytes and Macrophages. Abnormalities of the immune system.

3. Vitamins in health and disease:

Water soluble and fat soluble vitamins. A discussion of the occurrence, chemistry, metabolism, physiological functions, deficiency symptoms and requirements of vitamins A, B-Complex, C, D, E and K.

4. Physical Techniques used in Biochemistry:

General methods for extraction, fractionation and purification of proteins. Principles of chromatography, Gel filtration, ion-exchange chromatography, Affinity chromatography and gas chromatography. HPLC. Polyacrylamide and agarose gel electrophoresis, SDS PAGE, Immunoelectrophoresis. Immunological techniques including RIA, ELISA, Immunohistochemistry, Electrofocussing. Gradient centrifugation. Ultra filtration. Lyophilization. Electron microscopy. Radioisotopes and their applications in Biochemistry. X-ray diffraction

RECOMMENDED BOOKS:

1. Principles of Biochemistry by Lehninger AL, Nelson DL and Cox MN, 2000 Pub: worth Publishers
2. Biochemistry by Lubert Stryer(2006) Pub: Freeman and Company
3. A biologist's guide to Principles and Techniques of Practical Biochemistry by Bryan L Williams and Keith Wilson Pub: Edward Arnold Ltd.
4. Immunology by J. Kuby 2nd ed. 1996 Pub: W. H. freeman and Co.
5. Harpers Biochemistry, 27th ed. (2006) McGraw Hill Inc.