

75

16. INVESTIGATIVE BIO-TECHNOLOGY

Paper I : Bio-Chemistry and General Bacteriology

Max. Marks 60 3 hrs. duration Min. Pass Marks 22

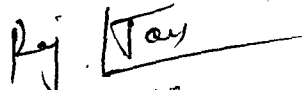
Teaching Periods 60

Section - A : Bio-Chemistry (Teaching Period 30)

1. Introduction and Scope of Bio-Chemistry.
2. Simple Analytical techniques : Weighing of solids and liquids; Preparation of solutions : Simple acid-base titration.
3. pH, Buffers types and their uses.
4. Mole, Molar and normal solutions, concentration units.
5. Classification and metabolism of Carbohydrates, Lipids, Proteins, Nucleic acids and Nucleo proteins.
6. Introduction of Vitamins and Enzymes; Clinically important enzymes and their estimation.
7. Metabolism of inorganic substances like Iodine, Phosphorus, Copper, Iron and Calcium.
8. Electrolytes in various tissue fluids in health and disease.
9. Gastric Analysis- Functional test of Liver, Kidney Pancreas and alkalosis, acidosis.

Section-B General Bacteriology (Teaching Period 30)

1. Microbial World.
2. Structure of bacterial cell; functions of cell organelles.
3. Sterilization and disinfection.


Dy. Registrar
(Academic)
University of Rajasthan
JAIPUR

4. Culture media.
5. Cultivation of Bacteria.
6. Identification methods in bacteriology.

Paper II - Elementary Anatomy, Physiology and Halmatology
Max. Marks 60 3 hrs. duration Min. Pass Marks 22
Teaching Periods 60

Section-A : Elementary Anatomy and Physiology
(Teaching Period 30)

1. Introduction to human body.
2. Important land marks in surface anatomy for L.M. and I.V. injection in adults, children and infants
3. Musculo- Skeleton and Respiratory system.
4. C.V.S. (Cardio Vascular System) circulation.
5. G.I.I.T. (Gestro Intestine Tract), Liver, Gallblader & Pancreas.
6. Urinary System.
7. C.N.S. (Central Nervous System) and A.N.S. (Autonomic Nervous System)
8. Endrocrines and Reproductive system.
9. Skin and temperature regulation.

Section - B : Hematology (Teaching Period 30)

1. Structure of cell and cell division.
2. Blood forming tissues and Bone-marrow.
3. Formation of RBCs. granulocytes, Mononuclear cells, Platelets and their normal counts.
4. Blood coagulation.
5. Anaemias-classification, diagnosis.

Practicals

Max. Marks 80 (52x3 periods) Min. Pass Marks 28

Unit-I : Bio-Chemistry

1. Glassware use in Bio-chemistry.
2. Cleaning of Glassware, weighing and measuring volumes.
3. Making and testing of distilled water.
4. Importance of calibration of glass apparatus used in estimation.

Syllabus B.A. Part-I

- 5. Collection, coding, preservation and disposal of biological specimen material for biochemical analysis.
- 6. Principles of Colorimetry and verification of Lambert-Bear's Law.
- 7. Bio-chemical estimation of-
 - (a) Sugar
 - (b) Urine
 - (c) Stool
 - (d) Protein
 - (e) A.G. ratio.
- 8. Detection of Organic poisons like opium, oliander and vomice.
- 9. Detection of Inorganic poisons like cooper, arsenic, antimony, tin, murcery, lead, barium and zinc phosphate, cyanides & insecticides.

Unit-II General Bacteriology and Hematology

General Bacteriology :

- 1. Introduction to microscopy, various types of microscopes and their uses.
- 2. Wet bacteria's mount and hanging drop preparation and dark field examination.
- 3. Preparation of smears for bacterial examination and Gram's Stain.
- 4. Preparation of various stains.
- 5. Staining of Smears-Sputum C.S.F. Body fluids, pus, asyirations.

Hematology :

- 1. Collection of blood from various sites in adult and children.
- 2. Cleaning of slides and cover slips and identification of various pipettes and their cleaning.
- 3. Making of statins used in Hematology.
- 4. Staining and examination of blood films.
- 5. Differential RBC and WBC counts.
- 6. Estimation of Hemoglobin by comparator and calorimeter.

Rg/Tar
 Dy. Registrar (Acad.)
 University of Rajasthan