

UNIT WISE CONTENT (BSCZO 304)

Unit 1: Hematology Exercise

- 1.1 Estimation of hemoglobin, % RBC & WBC and preparation of Haematin crystal.
- 1.2 Estimation of presence of sugar and albumin in a sample of human urine.

Unit 2: Physiology Experiment 2 (Slide study & reflex action)

- 2.1 Study of microscopic structure of endocrine glands: thyroid, pancreas, and ovary, testis, adrenal and pituitary
- 2.2 Study of estrous cycle in mice/rat.

Unit 3: Bio-chemistry Experiments

- 3.1 Chemical test of urine for the presence of urea, sugar, proteins and ketone bodies.
- 3.2 Color tests for carbohydrates, proteins and lipids
- 3.3 Action of Amylase on its respective substrates.

Unit 4: Immunology Experiment/study

- 4.1 DLC (Differentiation Leukocyte count)
- 4.2 Blood groups and Rh factors
- 4.3 Vidal test for the identification of Typhoid
- 4.4 VDRL test for Syphilis

Unit 5: Microbiology

- 5.1 Preparation of culture media, sterilization
- 5.2 Gram staining

Unit 6: Biotechniques (exercise based on chart / picture or sample instrument)

- 6.1 Determination of pH using pH meter
- 6.2 Demonstration of functioning of spectrophotometer
- 6.3 Demonstration of use of bright field, phase contrast, dark field, fluorescence, confocal and electron microscopes (on photograph basis)

Unit 7: Biotechnology/ Biotechnique Exercise (I)

- 7.1 Study of the principles and applications of the following equipment with the help of photographs/Diagram:
 - 7.1.1 Laminar flow
 - 7.1.2 Autoclave
 - 7.1.3 Elisa reader
 - 7.1.4 PCR machine
 - 7.1.5 Refrigerated centrifuge a
 - 7.1.6 Transilluminator

- 7.2 Double helical DNA Model
- 7.3 Chromatography or Thin Layer Chromatography (TLC)
- 7.5 Recombinant DNA techniques

Unit 8 Biotechnology/Biotechnique Exercise (II)

- 8.1 Study of prepared slides, models or specimen.
- 8.2 Escherichia coli
- 8.3 Bacteriophage
- 8.5 Plasmid
- 8.6 Southern blot
- 8.7 DNA Isolation
- DNA Replication

Unit 9: Biostatistics Exercise

- 9.1 Calculation of mean, median, mode, standard deviation, standard error from the data provided
(Simple non scientific calculator may be used for calculation of data).