

Department of Teacher Education

University of Karachi

B.Ed. Hons (Elementary). V-Semester

Science Content I , Biology (DTE-541)

UNIT# 1

- Introduction to biology
Branches of biology
Biological methods of investigation
Contributions of Muslim scientists & modern scientists in the field of biology.
Nomenclature and how to write scientific names of species?

UNIT # 2

- Cell biology
Microscopy and the Emergence of Cell theory.
Cell organelles and their functions.
Prokaryotic and eukaryotic cells.
Cell divisions (Mitosis & meiosis and their significances)
Tissues in plants & animals.

UNIT #3

- Genetics and Evolution
Common terms used in genetics
- Brief structure of DNA
- Watson and Crick model of DNA.
- Mandel laws of inheritance

- Hereditary diseases
Sex linked inheritance
Autosomal diseases
- Variations and their causes
- Lamarckism & Darwinism

UNIT #4

- Life Process
Photosynthesis and respiration
Transportation in plants and animals
Nutrition in animals. digestive system In man
Nervous and chemical co-ordination in man.

UNIT # 5

- Biotechnology
Scope of Biotechnology, Its Importance and Impacts
biotechnology in food, agriculture ,health and environment
- Genetic engineering
application of genetic engineering
Genetic engineering versus selective breeding.

Unit #6

- Ecology
Ecosystem-biotic and abiotic components.
Cycling materials (carbon, nitrogen and water cycles)
Biological interdependence.

References:

biology - AKU-EB - The Aga Khan University

Biology –Sind text book board

Cambridge O level Biology 5090. Syllabus for examination in 2022

Modern Biology- John H. Postlet wait, Janet L. Hopsin