

TELANGANA STATE BOARD OF INTERMEDIATE EDUCATION, HYDERABAD

ACADEMIC YEAR 2020-2021 ONLY

70% CONTENT IN VIEW OF COVID-19 PANDEMIC

INTERMEDIATE 2nd YEAR BOTANY Syllabus.

UNIT - 1: PLANT PHYSIOLOGY

CHAPTER 3: ENZYMES.

- 3.1 Chemical Reactions.
- 3.2 Enzymatic conversions.
- 3.3 Nature of Enzyme action.
- 3.4 Factors affecting enzyme activity.
- 3.5 Classification and nomenclature of enzymes.
- 3.6 Cofactors.

CHAPTER 4 PHOTOSYNTHESIS IN HIGHER PLANTS.

- 4.1 What do we know?
- 4.2 Early Experiments.
- 4.3 What is the site of Photosynthesis?
- 4.4 How many pigments are involved in Photosynthesis?
- 4.5 What is Light Reaction?
- 4.6 The Electron transport
- 4.7. Where are the ATP and NADPH are used?
- 4.8 The C₄ Path way.
- 4.9 Photo Respiration
- 4.10 Factors affecting Photosynthesis

CHAPTER 5: RESPIRATION IN PLANTS

- 5.1 Do plants Breathe?
- 5.2 Glycolysis
- 5.3 Fermentation.
- 5.4 Aerobic Respiration.
- 5.5 The Respiratory Balance sheet.
- 5.6 Amphibolic Pathway.
- 5.7 Respiratory Quotient

CHAPTER 6: PLANT GROWTH AND DEVELOPMENT

- 6.4 Plant Growth regulators.

UNIT 3: Genetics

Chapter 9: --Principles of Inheritance and Variations

- 9.1 Mendel's Experiments.
- 9.2 Inheritance of one gene (monohybrid cross)
- 9.3 Deviations from Mendelian concept of dominance.
- 9.4 Inheritance of Two genes (Dihybrid cross)
- 9.5 Chromosomal Theory of Inheritance
- 9.6 Linkage and recombination.
- 9.7 Mutations

UNIT 4 MOLECULAR BIOLOGY

CHAPTER 10: Molecular Basis of Inheritance.

- 10.1 The DNA
- 10.2 The search for Genetic Material.
- 10.3 RNA world
- 10.4 Replication
- 10.5 Transcription.
- 10.6 Genetic code
- 10.7 Translation.
- 10.8 Regulation of Gene Expression

UNIT- 5 BIOTECHNOLOGY

CHAPTER 11: BIO-TECHNOLOGY; PRINCIPLES AND PROCESSES

- 11.1 Principles of Biotechnology.
- 11.2 Tools of Recombinant DNA Technology
- 11.3 Process of Recombinant DNA Technology.

Chapter 12 Biotechnology and its Applications

- 12.1 Biotechnological applications in agriculture
- 12.2 Other applications of biotechnology
- 12.3 Transgenic plants
- 12.4 Bio-safety and ethical issues.

UNIT 6: PLANTS, MICROBES AND HUMAN WELFARE

CHAPTER 14: MICROBES IN HUMAN WELFARE

- 14.1 Microbes in Household products.
- 14.2 Microbes in Industrial products.
- 14.3 Microbes in Sewage treatment.
- 14.4 Microbes in production of Biogas.
- 14.5 Microbes as Bio control agents.
- 14.6 Microbes as Bio- fertilizers.
- 14.7 Challenges posed by Microbes.

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INTERMEDIATE CHEMISTRY PRACTICALS SYLLABUS

I. Qualitative analysis

Determination of one cation and one anion in a given salt.

Cation : Pb^{2+} , Cu^{2+} , Al^{3+} , Fe^{2+} , Mn^{2+} , Zn^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , NH_4^+ Anions: $(CO_3)^{2-}$, $(SO_4)^{2-}$, Cl^- , Br^- , CH_3COO^- , NO_3^- - (Note: Insoluble salts excluded)

II. Volumetric analysis (Titrimetry)

II.a. Determination of concentration/ molarity of $KMnO_4$ solution by titrating it against a standard Ferrous Ammonium Sulphate solution

II.b. Determination of concentration/ molarity of $KMnO_4$ solution by titrating it against a standard Oxalic acid solution

II.c. Determination of concentration/ molarity of HCl solution by titrating it against a standard Sodium Carbonate solution

II.d. Determination of concentration/ molarity of $NaOH$ solution by titrating it against a standard Oxalic acid solution

III.a. Tests for the functional groups present in organic compounds:

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

III.d Characteristic tests of carbohydrates, and proteins in pure samples and their detection in given food stuffs.

PROJECT

Scientific investigations involving laboratory testing and collecting information from other sources

A few suggested Projects.

- Study of the presence of oxalate ions in guava fruit at different stages of ripening.
- Study of quantity of casein present in different samples of milk.
- Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
- Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.)
- Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
- Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
- Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).
- Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.