

SYLLABUS FOR ENTRANCE TEST

B. Sc. (Hons.) Ag. 4-Year Programme

PHYSICS

Unit

- 1- Introduction and Measurement
- 2- Description of Motion in one Dimension
- 3- Description of Motion in Two and Three Dimensions
- 4- Laws of Motion
- 5- Work Energy and Power
- 6- Rotational Motion
- 7- Gravitation
- 8- Properties of Matter
- 9- Heat and Thermodynamics
- 10- Oscillations
- 11- Waves
- 12- Electrostatics
- 13- Current Electricity
- 14- Thermal and Chemical Effect of currents
- 15- Magnetic Effect of Currents
- 16- Magnetism
- 17- Electromagnetic Induction and Alternating Currents
- 18- Electromagnetic Waves (Quantitative Treatment)
- 19- Wave Optics
- 20- Ray Optics and Optical Instruments
- 21- Electrons and Photons
- 22- Atoms and Nuclei
- 23- Solids and Semiconductor Devices

CHEMISTRY

Unit

- 1- Atoms, Molecules and Chemical Arithmetic
- 2- Elements, their Occurrence and Extraction
- 3- States of Matter
- 4- Atomic Structures
- 5- Chemical families periodic properties
- 6- Bonding and Molecular Structure
- 7- Carbon and its Compounds
- 8- Energetics
- 9- Chemical Equilibrium
- 10- Redox Reactions
- 11- Rates of chemical Reactions
- 12- Chemistry of Non-metals I
- 13- Chemistry of Non-metals II
- 14- Chemistry of Lighter Metals
- 15- Chemistry of Heavier Metals
- 16- Structure and Shapes of Hydrocarbons
- 17- Preparation and Properties of Hydrocarbons
- 18- Purification and Characterization of Organic Compounds

- 19- The Molecules of Life
- 20- Atomic Structure and Chemical Bonding
- 21- The Solid State
- 22- Solutions
- 23- Chemical Thermodynamics
- 24- Electro-Chemistry
- 25- Chemical Kinetics
- 26- Organic Chemistry based on Functional Groups I
- 27- Organic Chemistry based on Functional Groups II
- 28- Organic Chemistry based on Functional Groups III
- 29- Chemistry of Representative elements
- 30- Transition Metals Including Lanthanides
- 31- Coordination Chemistry and Organo Metalics
- 32- Nuclear Chemistry
- 33- Synthetic and Natural polymers
- 34- Surface Chemistry
- 35- Bio Molecules
- 36- Chemistry of Biological Process
- 37- Chemistry in Action

BIOLOGY

Unit

1. The Living World
2. Unity of Life
3. Diversity of Life
4. Organism and Environment
5. Multicellularity : Structure and Function – Plant life
6. Multicellularity : Structure and Function – Animal Life
7. Continuity of Life
8. Origin and Evaluation of Life
9. Application of Biology

MATHEMATICS

1. Sets and Binary operation
- 2- Complex numbers
- 3- Quadratic equiations
- 4- Sequences and series
- 5- Statistics
- 6- Permutations and combinations
- 7- Mathematical Induction and binomial theorem
- 8- Linear programming
- 9- Exponential and logarithmic series
- 10- Trigonometry
- 11- Circles
- 12- Conic section
- 13- Matrices & Determinants
- 14- Vectors and three dimensional geometry
- 15- Differential Calculus
- 16- Integral Calculus
- 17- Definite Integral
- 18- Differential equations

- 19- Correlation and regression
- 20- Probability

AGRICULTURE

Unit 1

Introductory Basic Sciences

1. **Elements of Genetics and Plant Breeding.**
 - (a) Definitions of Genetics and Plant Breeding. Objectives and Importance of Plant Breeding and Genetics. Cell and its structure. Cell division and meiosis and their significance. Mode of pollination and flower structure.
 - (b) Linkage and crossing over. Sex-linked inheritance .
 - (c) DNA discovery, model, structure and replication Organisation of the genetic material in chromosomes, DNA & RNA.
 - (d) Elaboration of Mendel's laws of inheritance. Reasons for the success of Mendel in his experiments. Absence of linkage in Mendel's experiments.
2. **Elementary Biochemistry :**
pH, Carbohydrate, protein and vitamins.
3. **Introductory Microbiology:**
Microbial Cell structure, Micro-organism-Algae Bacteria Fungi, Actinomycetes and viruses; Fermentation., organic, matter decompositions

Unit 2

Livestock Production

1. **Introduction**
 - (a) Importance of Livestock
 - (b) Important breeds and distribution of cows, buffaloes and poultry.
2. **Care and Management:**
 - (a) Cattle housing.
 - (b) Management of calves, bullocks, pregnant and milch animals and poultry.
3. **Feeds and Feeding Practices**
 - (a) Balanced ration.
4. **Common Diseases:**
 - (a) Signs of sick animal
 - (b) Symptoms of common diseases e.g. Rinderpest, Block Quarter, Foot and mouth and Haemorrhagic Septicemia. Newcastle disease of poultry, their prevention and control.
5. Artificial Insemination (a) Importance (b) Techniques

Unit 3

Crop Production

1. **Introduction**
 - (a) Agriculture and Its importance in national economy.
 - (b) Different branches of agriculture and crop production.
2. **Soil and Soil Fertility :**
 - (a) Importance of Soil and Soil types.
 - (b) Soil pH. soil structure, soil organisms.
 - (c) Elements necessary for plant growth.
3. **Tillage and Farm Equipments:**
 - (a) Objectives, tillage, minimum tillage.

- (b) Kinds of tillage; preparatory, Interculture, weeding, harrowing and earthing.
- 4. **Farm Management:**
 - (a) Object
 - (b) Types of farming (co-operative farming, joint farming, intensive farming, Extensive farming, mixed farming and Dry farming etc.).
- 5. **Manures and Fertilizers:**
 - (a) Classification (organic and inorganic).
 - (b) Characteristics, uses and application of different nitrogenous, Phosphatic and potassic fertilizers.
- 6. **Irrigation and Drainage**
 - (a) Importance of Irrigation and Drainage.
 - (b) Sources of Irrigation water (rain, canal, tanks, rivers, wells, tube wells, etc.).
 - (c) Common water lifts.
 - (d) Methods of irrigation and drainage.
- 7. **Weed control**
 - (a) Principles of weed control.
 - (b) Methods of weed control (Mechanical, Chemical and Biological).
- 8. **Crops :**
 - (a) Economic classification (Cereals, pulses, oil-seeds, fodder, fibre crops, commercial crops).
 - (b) Quality of good seed, technique of quality seed production in general.
 - (c) Seed bed preparation, improved varieties, method of sowing, seed-rate, method and time of fertilizer application irrigation, interculture and weed control, common pest and diseases and their control, harvesting threshing and storage of paddy, wheat, maize, sorghum, pearl millet, gram, barseem, mustard, cotton, sugarcane, Jute, potato and tobacco.

Unit 4 **Horticulture**

- 1. **Introduction:**
 - (a) Importance
 - (a) Planting-systems, training, pruning intercropping, wind-break, protection from frost sunburn.
 - (b) Propagation-seed cutting, budding layering gootee, grafting.
 - (c) Cultivation-Mango-Papaya, Banana Guava and Citrus.
- 2. **Vegetable Gardenings**
 - (a) Kitchen gardening.
 - (b) Cultivation of Radish, Carrot, Cauli-Flower, Onion, Brinjal, Tomato and potato.
 - (c) Curcurbits and leafy Vegetables.
- 3. **Ornamental Gardening:**
 - (a) Common Ornamental and Flowering Plants.
- 4. **Fruit and Vegetable Preservation :**
 - (a) Preservation of fruits and vegetables
 - (i) General principals and methods of fruits and vegetables preservation-processing by heat, preservation by antiseptic, drying, preservation by fermentation and exclusion of air, dehydration and packing.
 - (ii) Preparation of jellies, jams and tomato ketchup.

Unit 5

Agriculture Business, Planning and Management

- (i) Inventory of farms resources.
- (ii) Identifying farms family assets and liabilities.
- (iii) Maintenance of farm-record and accounts.

Syllabus for Agriculture Aptitude Test

B.Sc. (Hons.) Agri. 6-Year (2+4) Programme

Part I: General Aptitude in Agriculture:

Knowledge of candidates in vernacular language about the land measurements, cultivation of various rabi and kharif field crops, fruits and vegetables crops, Classifications of crops, manures and fertilizers, farm hand tools, implements and farm machinery, weeds, irrigation, seeds, rural institutes and programmes, Live Stock Production and Management, general agriculture and allied activities. **It will be of 60 marks.**

Part II: General Science:

The syllabus will be as per Board of School Education Haryana, Bhiwani of 10th standard. Chemical Reactions and Equations, Acids, Bases and salts, Metals and non-Metals, Carbon and its Compounds, Periodic Classification of elements, Life Processes, Control and Coordination, How do Organisms Reproduce, Heredity and Evolution, Light – Reflection and Refraction, Human Eye and Colourful World, Electricity, Magnetic Effects of Electric Current, Source of Energy, Our Environment, Management of Natural Resources. **It will be of 40 marks.**