B. SC. HOME SCIENCE Ist YEAR

Paper No.	Papers	Theory	Practical	Total
I	Applied Chemistry	50	50	100
II	Physiology and Hygiene Nursing and First Aid	75	50	125
III	Food and Nutrition	75	50	125
IV	Basics of Garment Construction	50	50	100
V	Human and Family Development	100	--	100
	Total Marks	**350**	**200**	**550**

PAPER I: APPLIED CHEMISTRY MM-50

1. **Organic Chemistry:** Introduction, origin, role and source of organic compounds, classification, nomenclature and purification of organic compounds. Empirical, molecular and structural formulae of organic compounds.
2. **Aliphatic Hydrocarbons**: Petroleum industry, cracking, synthetic petrol, flash points and coal tar distillation. Halogen derivative of alkane- Chloroform.
3. **Alcohol:** Preparation, properties and uses of glycol and glycerol. Fermentation.
4. **Ethers:** Preparation, properties and uses of diethyl ether.
5. **Aldehydes and Ketones:** Preparation, properties and uses of formaldehyde, acetaldehyde and acetone. Condensation.
6. **Esters:** Preparation, Properties and uses of ethyl acetate. Saponification of oils and fats.
7. **Acids:** Preparation, properties and uses of formic acid, acetic acid and oxalic acid.
8. **Amines:** Primary, secondary and tertiary amines.
9. **Organo-Metallic Compounds:** Preparation of such compounds containing magnesium and their applications.
10. **Isomerism:** Asymmetrical carbon atom, optical activity, stereo isomerism, tautomerism, geometrical isomerism.
11. **Carbohydrates**: Classification, properties and configuration of glucose, fructose, galactose, ribose, deoxyribose, lactose, maltose, sucrose, starch, glycogen, cellulose and dextrin.
12. **Aromatic Compounds:** Preparation, properties and uses of benzene, chlorobenzene, bezene sulphonic acid, aniline, phenol, diazonium salt, benzaldehyde, naphthalene and pyridine.
13. **Simple Drugs and Medicine used in the Home**: Headache remedies, pain relievers, laxatives, cold and cough remedies, household antiseptic and disinfectant, antibiotic, sulpha drugs.
14. **Elementary Study of Essential Oils and Flavouring Agent:** A general idea of their preparation, characteristics and uses.
15. **Preparation Complication and Uses of Cosmetic:** Face and talcum powder, creams, lipsticks, rouge and other makeup, soaps, shampoos, hair dye, deodorant, nail and shaving preparations.

16. **Study of common pesticides and their use in the home.**
17. **Elementary Study of High Polymers**: Plastics, nylon, rubber and their applications.
18. **Metals and their Alloys in Household Use**: Iron, gold, silver, aluminum, copper and steel.
19. **Minerals Used in Household Construction**: Cement.
20. **Elementary Study of Dyestuffs and its Classification:** Acid dyes, basic dyes, mordant dyes, vat dyes and Azo dyes.
21. **Chemical Poisons in Foods**: Toxins naturally present in food, natural organic toxins. Toxins in foods from other sources- Radioactive contaminants.

PRACTICAL: APPLIED CHEMISTRY MM-50

1. **Quantitative Inorganic Analysis:** Alkalimetry and acidimetry, oxidation and reduction, gravimetric analysis.
2. **Qualitative Analysis of Organic Compounds:** Test for following compounds and their identification, methanol, ethanol, formaldehyde, acetaldehyde, acetone, formic acid, acetic acid, oxalic acid, citric acid, tartaric acid, glucose, fructose, sucrose, lactose and starch.
3. Preparation of soap by cold and hot processes.
4. Estimation of free alkali by titration.
5. Estimation of total hardness in water.
6. Estimation of residual chlorine in water by titration.
7. Estimation of available chlorine in bleaching powder.
8. Estimation of available oxygen in hydrogen peroxide.
9. Analysis of talcum powder.
10. Detection of lathyrus sativus in gram flour.
11. Detection of methyl alcohol in alcoholic beverages.
12. Chemical nature of textile fibers.

PAPER II: PHYSIOLOGY AND HYGIENE MM-75

I. HYGIENE

1. **General Hygiene:**
   a. **Water:** Principles of water purification.
   b. Water works.
   c. Home (WHO specification)
2. **Sanitation:**
   a. **Refuse:** removal and disposal.
   b. **Night Soil:** removal and disposal.
   c. General sanitation of village, city and community.
3. **Medical inspection of schools**
4. **Maternity and Child Welfare Practices**: Inoculation, vaccination, birth control, immunization.
5. **Air and Ventilation:**
   a. Composition of air, changes in atmosphere due to respiration, combustion, smoke, dust and bacteria, diseases due to impurity of air.
   b. Meaning of ventilation, air required for healthy and sick persons. Natural and artificial ventilation.
6. **House:** Sanitation, floors, walls, doors, window, kitchen and drains.
7. **Disposal and Refuse:** Conservancy, water carriage, system disposal of slope water, sewers, silage, septic tanks sewage water, quantity of water required for different purposes, source of water, storage, impurities and its purification.
8. **Personal Hygiene:**
   a. Effect of exercise on different systems.
   b. Infection, incubation, period of infectivity carriers of infection, channels of infection, mode of transmission, epidemiology, and stages of air infections disease.
   c. Pathogenecity, virulence, susceptibility, suspect, immunity notification, modifiable diseases, isolation (domestic) concurrent and terminal disinfection of diseases.

9. **Preventable Diseases:** A brief study of following diseases giving them cause, mode of spread, incubation period, symptom, care and preventive measures.
10. **Water, Food and Milk Borne-Diseases:** Cholera, typhoid, dysentery, viral infection, Hepatitis.
11. **Air Borne Infection:**
    a. Smallpox, chickenpox, measles, mumps, whooping cough, pulmonary tuberculosis.
    b. Influenza, anterior poliomyelitis and diphtheria, Rheumatic fever.
12. **Disease Caused by Direct Contact, Cuts and Abrasion:** Ringworm, conjunctivitis, leprosy, rabies, venereal disease (Syphilis gonorrhea), tetanus aids.
13. **Diseases Spread by Insects:** Malaria, filaria.
14. **Pollution and Contamination**
15. **Effect on Health and Disease:** Allergy hypersensitivity.

II. PHYSIOLOGY

1. **A Brief Study of Structure and Organization of Cells:**
    a. Tissue: Histology of tissue and then distribution in body- epithelial, muscular, connective and nervous tissue.
2. **Cardiovascular System:**
    a. Blood: Composition, function, coagulation, formation and destruction of cells.
    b. Heart: Structure, cardiac cycle, blood pressure circulation (systematic, pulmonary, portal, coronary circulation)
3. **Lymphatic System:** The spleen and reticuloendothelial system.
4. **Digestive System:** General anatomy of alimentary canal, liver, pancreas, gall bladder, mechanism of digestion, absorption, secretion and action of enzymes absorption skin.
5. **Excretory System:**
    a. Respiration: structure of respiratory organs, mechanism of respiration, gaseous exchange in lungs and tissues, acid-base balance and anorexia. Asphyxia and artificial respiration.
    b. Skin
6. **Urinary System:** Nephron, kidney, ureters, bladder and urethra

7. **Nervous System**
    a. Neurons and cerebro-spinal fluid.
    b. Brain and spinal cord.
    c. Autonomic nervous system.
    d. Reflex action, general mechanism of serration and perception with special emphasis to vision and hearing.
    e. Organs of taste and smell.
8. **Endocrinology:** General principles of hormonal secretion, action and control with special reference to growth, metabolism and reproduction.
9. **Reproductive System:** General anatomy of male and female, reproduction organs, puberty, development of griffin follicles, menstrual cycle. Fertilization, implantation, pregnancy, foetal membranes, parturition and its regulation.
10. **Elements of Muscle Physiology:**
    a. Mechanical and chemical changes during muscular contraction.
    b. Metabolism: B.M.R and control of metabolism (general), regulation of body temperature.
    c. General body frame works- joints, girdles.
11. **Demonstration:**
    a. Estimation of hemoglobin.
    b. Blood pressure- placatory method.
    c. Counting of pulse and respiratory rate.
    d. Simple human reflexes- biceps, triceps, knees and ankle jerks.
    e. Home nursing and first aid- (Red Cross)

PRACTICAL: PHYSIOLOGY AND HYGIENE MM-50

CELLS

1. **Demonstration of Cell Types, Tissues:** Study of epithelium of stomach and intestine, pancreas, liver, kidney, striated muscle, nerve cells, fresh mount and stained smear, hemoglobin estimation, measurement of blood pressure and pulse rate.
2. **Abnormal Constituents of Urine:** Outline of the framework of human body, classification of bones, structure and composition of bones.
3. **General Osteology:** Including bones of skull, spinal or vertebral column, thorax, upper extremity, study of models and specimens of different organs and parts of the body. Use of microscope, histology of cells.
4. **Study of Amphibians and Human:** RBC, epithelium, columnar, squamous, ciliated and transitional cells, adipose tissue, plain muscle, cardiac muscle, blood vessels and nerves, lymph gland, spleen and tonsils, suprarenal, thyroid, pituitary, salivary, skin and mammary glands, pancreas and lungs, kidney urinary bladder and genitals, medulla oblongata, cerebellum and cerebrum.
5. **Preparation of Blood Slides**: Different blood count, determination of total RBC and total WBC.
6. **Determination of Hemoglobin Percentage:** Identification of malaria parasite, filarial and L.D bodies, preparation of pus slides and identification of bacteria, staining and identification.

PAPER III: FOOD AND NUTRITION MM-75

1. **Nutrition:**
   - **a.** Meaning, scope, purpose and importance.
   - **b.** Study of nutritional status of the individual or group.
   - **c.** Importance of balanced diet.
2. **Nutrients:**
   - **a.** Classification, function, sources, recommended daily allowances, and the role they play in nourishing the body.
   - **b.** Digestion and absorption of carbohydrates, proteins and lipids in the body.
3. **Vitamins:**
   - **a.** Classification, function, sources, recommended daily allowances, and the role of food soluble and water soluble vitamins.
   - **b.** Role of water in human body.
4. **Minerals:**
   - **a.** Classification, function, sources, recommended daily allowances of calcium, phosphorus and iron.
   - **b.** Trace elements.
5. **Food:**
   - **a.** Introduction, definition, functions of food and its relation to nutrition.
   - **b.** Food groups, special reference to Basic-11, Basic-7, Basic-5, Basic-4.
   - **c.** Food guide pyramid.
6. **Cereals:**
   - **a.** Types, composition and nutritive value of cereals
   - **b.** Processing of cereals
   - **c.** Fortification of cereals
7. **Pulse and Legumes:**
   - **a.** Types, composition and nutritive value of pulses.
   - **b.** Trypsin inhibitors, ways of making pulses more digestible

8. **Sprouting:**
    a. Methods and importance of sprouting pulses viz Moong, Gram, Peas (matar).
9. **Vegetables and Fruits:**
    a. Types, classification, nutritive value and their uses in cooked and raw forms and fruits as provider or color and vegetables flavor to food in the diet.

PRACTICAL: FOOD AND NUTRITION MM-50

1. Knowledge of weights and measures.
2. **Methods of Cooking:** Boiling, steaming, baking, roasting, baking and frying.
3. **Preparation of Different Types of Soups:** Tomato soup, carrot soup, lentil soup, pea soup, Chinese soup, broccoli soup, sweet corn soup, chicken soup.
4. **Salad Making:** Salad dressing.
5. **Continental:** Macaroni, vegetable pasta, spaghetti with meat balls, baked vegetables with cream cheese.
6. **Confectionary:** Vanilla cake, chocolate cake, Christmas cake with rum and fruits, ginger cookies, peanut cookies, chocolate cookies, butter icing.
7. **Preparation of Indian Sweets:** *Gulab jamun, burfi, laddoo* and *balu shahi*.
8. **Beverages:** Hot and cold.

PAPER IV: BASICS OF GARMENT CONSTRUCTION MM-50

1. **Study of Different Sewing Equipments:** Parts of sewing machine and their functions, measuring, marking and cutting equipments, sewing aids.
2. **Study of Simple Stitches:** Basting, running stitch, hemming bone, blanket stitch, chain stitch, feather stitch, lazy daisy and French knot.
3. **Seam and Seam Finishes:** Plain seam, French seam, run and fell seam, lapped seam, counter seam, different placket openings.
4. **Disposal of Fullness in a Garment:** Darts, pleats, tucks different types of tucks, gathers, shirring and smoking.
5. **Socio-Psychological Aspects of Clothing:** Selection of fabrics for different purposes and family clothing.

PRACTICAL: BASICS OF GARMENT CONSTRUCTION MM-50

1. Collection of different types of fabrics available in market.
2. Different type of stitches/embroideries.
3. Different types of seam and finishes.
4. Different types of techniques for adding fullness in garments.

PAPER V: HUMAN AND FAMILY DEVELOPMENT MM-100

1. **Foundation of Human Behavior:** Concept, meaning, history, scopes, value and general principles or characteristics of child psychology/child development.
2. **Theories of Human Development:**
   - **a.** Sigmund Freud's psycho sexual development theory.
   - **b.** Eric-Ericson's psycho sexual development theory.
   - **c.** Piaget's cognitive development theory.
   - **d.** Thorndike learning theory.
3. **Method of Social Psychology/ Child Psychology:**
   - **a.** Methods of the study of developmental psychology.
   - **b.** Longitudinal and cross-sectional approach of child Psychology.
4. **Growth and Decline**:
   - **a.** Fertilization process
   - **b.** Causes of multiple birth
   - **c.** Genes and chromosomes
   - **d.** Sex determination
   - **e.** Pattern of genetic transmission
   - **f.** Genetic and chromosomal abnormalities
5. **Parental Development:**
   - **a.** Origin of life.
   - **b.** Phases of pre-natal development (period of ovum, embryo and foetus)
   - **c.** Hazards during pre-natal development.
   - **d.** Prenatal care (mother and child).
6. **Environmental Influences:**
   - **a.** Parent's role, maternal age, outside environmental hazards, drug intake, physical activity.
   - **b.** Prenatal assessment and intervention
   - **c.** Birth process
   - **d.** Preparation of the birth event
   - **e.** Stages of labour, essentials of cleanliness during delivery

7. **Post Natal Development (Partunate and Neonate):**
   - **a.** New born baby
   - **b.** Size and appearance
   - **c.** Stages of arousal
   - **d.** Complication of child birth
   - **e.** Reflexes of the new born
8. **Nature and Nurture:**
   - **a.** Influences of heredity and environment
   - **b.** Individual differences
   - **c.** Learning and maturation
   - **d.** Growth and development
9. **Infancy:**
   - **a.** Developmental issues in infancy
   - **b.** Care of the new born clothes
   - **c.** Baby bath
   - **d.** Breast feeding
10. **Babyhood:**
   - **a.** Characteristics and developmental task of babyhood.
   - **b.** Physical development and physiological development.
   - **c.** Muscle control.
   - **d.** Supplementary feeding and weaning.
   - **e.** Habit formation and toilet training.
   - **f.** Role of parents and care givers in language development.
   - **g.** Speech development, emotional behavior and development in socialization, interest in play development of understanding of mortality- family relationship.
   - **h.** Personality development and hazards of babyhood.
11. **Childhood Early Middle and Late:**
   - **a.** Characteristics and developmental task of childhood.
   - **b.** Physical developments, physiological habits and skills of childhood.
   - **c.** Sibling relationship
   - **d.** Developmental attitudes, behavior and common interest in childhood.

12. Preschool Education through Nursery School:

a. Nursery school, type of nursery schools and its role in child's developmental

b. Importance of nursery schools in child's development

13. Play:

a. Types, importance and value of play.

14. Normal Behavioral Childhood Problems:

a. Condition and cause of the problem.

b. Enuresis, thumb sucking, nails biting, stammering, stealing, dyslexia, anxiety, ADHD, lying, autism.

c. Remedial methods, family relationship and its changes.

d. Personality development, changes in childhood and its hazards.

e. Importance of sex education.

f. Exceptional children.

15. Puberty:

a. Characteristics and criteria of puberty.

b. Puberty growth, spurt, body changed and effects.

c. Common concerns about normalcy, hazards and unhappiness during puberty.

16. Parent Child Relationship:

a. Parenting and its types.