

B.Sc. I Year

Home Science 2015

Paper - 1

Elements of Household Physics

M.M. : 50

Time : 3 p/w

UNIT-1

Ventilation

- a. Meaning, need and purpose
- b. Terms related to ventilation- infiltration, distribution and circulation
- c. Types- Natural ventilation, mechanical ventilation, whole house ventilation, spot ventilation, mix mode ventilation
- d. Ventilation for different climates
- e. Ventilation for different parts of the house- Kitchen, Bathroom and Bed room

UNIT- 2

Environment and its relation with human being

Heat

- i. Sources of heat – metabolic and environment
- ii. Heat exchange between human body and its surroundings- Conduction, Convection, evaporation and radiation
- iii. Factors affecting heat exchange between human body and the environment – climatic and non climatic
- iv. Health problems and control measures of - heat cramps, heat exhaustion, heat stroke, transient heat, fatigue

Cold

- i. Effect of cold on health and control measures

Energy

- ii. Meaning, Measurement and selection of energy
- iii. Introduction to Conventional and non conventional energy and their types

UNIT -3

Light

- i. Introduction and sources of light-
- ii. Properties of light
- iii. Factors affecting visual acuity- light intensity, freedom from dazzle, uniform lighting through out the room, and steady level of illumination.
- iv. Colour- source of colour, physical and psychological properties of colour, responses of eye to colour, methods of producing colour
- v. Light pollution
- vi. Meaning and purpose of illumination
- vii. Health problems generated by light pollution and remedial measures

UNIT- 4

Noise and atmospheric pollution

(I) Noise in the house

Definition

Sources (indoor and Out door)
effect of noise auditory (loss of hearing), and non auditory- hypertension,
hyperacidity, loss of concentration, interference with verbal communication
Measures taken for reducing noise levels in houses.

(II) Atmospheric pollution-

Definition

Source

Effect on health and control measures

UNIT- 5

Modern house hold equipments-

Introduction, parts, functioning, care and maintenance of –

- a. Dishwasher
- b. Microwave and its types
- c. Induction cooker
- d. Food processor
- e. Water purifier and its types
- f. Automatic washing machine
- g. Equipments work by Solar energy- Solar dryer and water heater

Practical

Elements of Household Physics

M.M- 30

Internal – 10

External - 20

Time- 2p/w

1. Resource file
2. Parts , principle and working mechanism of equipment mentioned in theory
3. Market survey for the equipments and preparation of the report
4. Meter reading, fixing of fuse, gas cylinder fitting.
5. First aid for the sickness of heat and cold
6. Reading and recording of body temperature, blood pressure, pulse and sugar
7. Plan colour scheme for different rooms with the help of model.
8. Floor Decorations

Reference-

Leithead and Lind: Heat stress and heat disorder

Home & Interior: Anna hung Rutt

Home management: B. B. Swanson

Hosee hold ergonomics: Grandjean

Household Equipments: Peet & Picket

Paper - II

Elements of Textile Science

M. M. : 50

Time : 3 p/w

Unit – 1

1. Importance of studying textiles, its relation to Home Science.
2. Essential properties of textile fibers.
3. Classification of textile fibers.
4. Identification of textile fibers

Unit – 2

1. Types of Textile fabrics.
2. Textile terminology
3. Fashion Terminology
4. The consumer's interest in fibers and fabrics

Unit – 3

1. Introduction to weaving
2. Terms used in weaving
3. Loom its parts and working
4. Knitting - Terminology and types of knits

Unit – 4

1. Fashion change and consumer acceptance
2. Careers in Fashion industry
3. Labeling of Textiles
4. Textile Research Associations

Unit – 5

General Principles of Clothing Construction:

- (1) Drafting & making paper pattern.
- (2) Taking body measurement for different types of garments.
- (3) Preparation of fabrics for Garment Making.
- (4) Estimation of material required for different garments
- (5) Laying out of patterns, cutting & marking

Practical

Internal – 10

External - 20

Time- 2p/w

1. Part of sewing machine – equipment for measurement, planning, cutting and sewing
2. Construction process in garment making (samples)
 - a. Stitches
 - b. Seams
 - c. Darts, pleats, tucks, gathers
 - d. Mending, patches and darning
 - e. Different embroidery stitches (making their samples)
 - f. Knitting samples
3. Infant garment
Baby's layette – diaper, jhabla, bib,
4. Making of soaps and detergents.

References;

1. Anna Jacob: Art of Sewing
2. Corbman, B.P.: Textile Fiber to Fabric
3. Joseph, M.L.: Essentials of Textiles
4. Readers Digest: Complete guide to Sewing
5. Savitri Pandit: Manual for children's Clothing
6. Wingate, I.B.: Textile Fabrics and their Selection

Paper III

Science of Human Development

Unit – 1

- a) 1. Meaning and importance of studying human development and family studies.
2. Concept of life span development.
- b) Development: definition of growth and development and the difference, Dimensions of development: Physical, Motor, Cognitive, Socio and emotional development
- c) Principles of development.
- d) Stages of human development and their importance.

Unit – 2

- a) Concept of developmental task and tasks of all the stages.
- b) Context of development: Introduction to concept of nature and nurture.
- c) Genetic inheritance: introduction to genes and number of chromosomes, Genotype and Phenotype.

- d) Context of development: Family, SES, gender and culture.

Unit – 3

Learning, Intelligence and Creativity

- a) Learning: meaning and principles.
 - i) Learning and reinforcement.
 - ii) Motivational factors in learning.
- b) Intelligence
 - i) Meaning definition and nature of intelligence.
 - ii) Development of Intelligence and factors influencing it: nutrition, stimulation and IQ.
- c) Creativity
 - i) Meaning and importance.
 - ii) Relationship of intelligence and creativity.

Unit – 4

Socio-emotional and language development, concept of personality.

- a) Meaning and aspects of social development.
 - i) Acquiring social behavior.
 - ii) Understanding social rules.
 - iii) Developing social attitude
- b) Emotions
 - i) Meaning and difference between emotions and feelings.
 - ii) Functions of emotions
 - iii) Emotional needs of children: love, security, stability and attention.
- c) Personality
 - i) Definition and types of personality.
 - ii) Concept of mental health

Unit – 5

- a) Scope of the field of HDFS.
 - i) Opportunities for roles and employment.
 - ii) Researches on issues related to HD.
 - iii) Educationist: ranging from Preschool to University.
 - iv) Trainer
 - v) Planner of policies or programmes related to women & children.
 - vi) Implementing intervention for different aspects related to HD (including special education)
 - vii) Counselor
- b) Setting & availability
 - i) Early childhood care & education.
 - Preschool Centers
 - Crèches
 - Hobby resource centers
 - Early stimulation programme

- ICDS and anganwadies
- ii) Family welfare programmes.
 - Family welfare programmes
 - Child welfare programmes
 - Programmes for the care of elderly
 - Organizations related to advocacy
- iii) Children with special needs.
 - Specialization counseling centers
 - Schools (as planners)
 - Early intervention
 - Development testing

Practical

M.M- 30
Internal – 10

External - 20

Time- 2p/w

1. Child Development
 - i. Making a growth enhancing toy/material
 - ii. Preparation of resource file containing
 - a. 10 stories for children
 - b. 10 songs for children
 - c. Collect 10 current articles on child development from news paper/magazines etc. and its display on board.
 - iii. Prepare a chart/flip/book/album depicting all the stages of human development covering at-least one developmental task at each stage.
 - iv. Techniques of anthropometric measurement (height, weight and head circumstances)
 - v. Accidents and emergencies in childhood and their first aid
Electric shock, foreign body in nose, ears and eyes, animal bite: dog, snakes and insects and burns.

Books reference

Hilgard, E. R.: Atkinson, R. C. and Atkinson, R. L.: Introductions to Psychology, Oxford, 1976

Boaz, G. D.: General Psychology, Gunalya Press, 1971

Pandey, General Psychology

Hurlock, E. 1995, Child development, New York: McGraw Hill Book Co.

Hurlock, E. 1995, Child developmental, Psychology New York: McGraw Hill Book Co.

Bee, H. 2000 The development child

Paper - IV

Elements of Nutrition and Food Science

Time – 3 hrs.

Max. Marks – 50

Unit – 1

Food meaning, functions, classifications.

Food groups, characteristics of food groups balanced diet. Recommended daily allowances for various age groups ICMR.

Food preparation.

- a. Reasons for cooking.
- b. Principles of food preparation.
- c. Methods: classification, procedure, merits and limitations.
- d. Effect of cooking.
 - I. Food constituents, chemical, physiochemical and microbiological.
 - II. On nutritive value of food.

Unit – 2

Factors affecting selection of food, availability, economy, importance of colour, texture and flavour of food, quality, socio-cultural etc.

Objective in the study of food retention of nutritive value, development of flavour and palatability, control of economy, improvement of digestibility, preservation of quality and safety.

Unit – 3

Physio-chemical properties of food, study of composition colloids, osmotic pressure hydrogen ion concentration (pH), Bound water in foods.

Methods of improving nutritional quality of food germination, fermentation, supplementation fortifications.

Unit – 4

Food Preservation.

- a. Definition.
- b. Causes of food spoilage.
- c. Importance of preserving foods.
- d. Principles of food preserving.
- e. Methods of food preservation home and commercial.

Unit – 5

Food packaging

1. Introduction.
2. Packaging: concepts, significance & functions.
3. Classification of packaging materials: flexible package, rigid package, retail or shipping containers.
4. Interactions between packaging and food toxicity hazards.
5. Biodegradable materials and environment issues.
6. Labeling requirements
 - a) Nutrition labeling
 - b) Nutrition claimsCoding of food products
7. Packaging laws and regulation

Practical

M.M- 30
Internal – 10

External - 20

Time- 2p/w

(i) Cookery:

Terms, weight & Measures, principles for designs in laying of meals, types of serving

(ii) Cooking Methods

Demonstration of methods: Boiling, Steaming, Baking, Roasting and Frying (Shallow & Deep)

- (iii) Preparation of Five dishes each of the following:
 - a. Drinks, Soups
 - b. Snacks, Raita & Chutney
 - c. Vegetables, Pulses, Salads
 - d. Rice preparation Pulav, Biryani etc.
 - e. Sweets deserts and Ice Cream
 - f. Cakes & Biscuits
 - g. Demonstration on Cake Icing
 - h. Food Preservation – Jam, Jelly, Pickle, Sauce, Vegetables. Drying
- iv) Theme parties with decoration
 - a. Festivals, birthdays etc.

Books references.

1. Norman, P.N.: Food Science.
2. Palmer: Food Theory and Application.
3. Charley, H.: Food Science.
4. Shakuntala Manay: Food Science.
5. Marry and Benin: Introductory Food.
6. Griswald: The Experimental Study of Food.
7. Peckam, L. H.: Food Chemistry.
8. Shadakshar Swamy: Food Foundation.

Paper - V

Elements of Extension Education

MM – 50

Time – 3 p/w

Unit – 1 Introduction of Extension education:

- a) Concept of Education, Non formal , Formal, Informal and Extension Education
- b) Objectives of Extension Education
- c) Function and Scope of Extension Education
- d) Principles of Extension Education
- e) Process of extension education.

- f) Qualities of an Extension worker
- g) Philosophy of extension education

Unit- 2 Introduction to Communication

- a. Meaning
- b. Is communication an Art or Science
- c. Elements of Communication and their characteristics- communicator, message, channels, treatment of message, Audience and audience response
- d. Commandments of good communication
- e. Seven C,s of Communication
- f. Objective of communication
- g. Self confidence for effective communication

Unit- 3 Communication Media and Information technology

- a. Folk Media- meaning, Importance and Types
- b. Electronic media- media and advantage
- c. Importance, advantage and disadvantage of Radio
- d. Telecommunication (meaning and use in communication only)- Television, Telephone, mobiles, video conferencing, E- mail, Fax,
- e. Information technology and its use in education, factor effecting selection of technology
- f. Advantages and disadvantages of mechanization of communication

Unit 4 : Communication for Extension :

- (i) Formal and informal communication- their types, advantages and disadvantages
- (ii) Effective writing- objectives, essentials and media of written communication,
- (iii) Art of listening in communication- good listening, principle and guidelines for effective listening
- (iv) Effective speaking- principles, guidelines and styles and media for oral communication

Unit- 5 - Communication of Innovation :

- a) Concept of Innovation
- b) Characteristics of Innovation
- c) Adoption Process
- d) Factors affecting the adoption of Innovation
- e) Adopters categories

PRACTICAL

M.M- 30
Internal – 10

External - 20

Time- 2p/w

(I) Developing skills in puppet as folk media-

- Preparation of puppets
- Prepare script for puppet play on any social issue
- Present puppet show

- (II) Prepare scrap book contains different electronic media
- (III) Writing success stories to present on Radio
- (IV) Visit to training and development organization
- (V) writing report of the same visit

Reference :-

Dhama, O.P. & Bhatnagar, O.P. : Education and Communication for Development, 1987

Dhama, O.P. & Bhatnagar, O.P. : Communication for Development, 1991

Mandal, S. & Ray, G.L., A text Book of Rural Development, 2007,

Ray, G.L., Extension Communication and management, 1999, Nays Prakashan, Calcutta

Reddy, A.A. , Extension Education, 1976, Shree laxmi press, Bapla, A.P

Extension Education in Community Development, Directorate of Extension Education, GOI, New Delhi

Supe, S.V. : An Introduction to Extension Education.

Paper VI

APPLIED PHYSICS

Time – 3 Hours.

Max. Marks – 50

Unit – 1 : Current Electricity :

Primary and secondary cells and their, E.M.F. Series and parallel arrangement of cell
Ohm:s law, definition of ampere, ohm, watt, kilowatt hour, Parallel and series

Connection of resistances. Potential-differences. Direct and alternating currents

Magnetic effects of current, moving coil galvanometer, ammeter, voltmeter, Faraday's
law of electro magnetic – induction, electromagnet, Electric bell, transformer, and
motor dynamo

Chemical Effects:

Flow of current in a solution, Laws of electrolysis electroplating techniques of cleaning of silverware, application of electrolysis in Industry

Unit – 2 : Household Appliance :

Heating device:

Relation between electric energy and heat

Elements used in thermal equipments, Electric Iron, toaster, coffee percolator, heater, cooking ranges, water heater, geyser, electric mattresses and blanket, room heater, central heating

Refrigeration appliances : Refrigerators, Air-coolers, Air-conditioning

Mechanical appliances: Different types of pumps, cycle pumps, stove and booster water pump

Other appliances : Fan, washing machine, vacuum cleaner, electric sewing machine

Unit – 3 : Household fitting :

Electric lighting:

- a. Source of light: incandescent lamps, Fluorescent tubes, sodium, and mercury lamps neon sign, lamps with internal reflector
- b. Distribution of electricity in a house, phase, neutral and earth wires, cables fuse, plug switches
- c. Measurement of electric power, watt meter
- d. Effect of electricity on human body
Domestic illumination, unit of intensity of illumination and illuminating power, illumination requirements of various rooms.

Methods of Internal illumination, Direct and indirect, Domestic water-supply for city, for house water tap, Flush latrine

Unit – 4 : Modern Physics :

Photoelectric effect : Photocell and their application.

Discharge of electricity, through gases-Cathode rays, X-rays solid state.

- a. Semi conductors and insulators, Elementary idea of transistors
- b. Television : Persistence of vision, principles of T.V. receiver, color T.V.

Satellites: Uses of satellites in long distance communication T.V., weather forecasting and remote sensing

Unit – 5 : Sound :

Sound, Source of sound of transmission of sound waves

Velocity of sound, frequency, wave length, Reflection, refraction and diffraction

Absorption of sound-elementary ideas of acoustics building, intensity of sound

Ultrasonic applications in diagnosis, ranging and engineering

Musical sound instruments:

- a. Characteristics of sound: Loudness, pitch and quality
- b. Resonance, beats
- c. Musical scale-diatonic and tempered
- d. Musical instruments: Sitar, Harmonium and flute
- e. Human voice, Ultrasonic by bat
- f. Transmission of sound by telephone
- g. Recording and reproduction of sound gramophone, tape recorder, recording and reproduction of sound in motion pictures

Paper VII

APPLIED CHEMISTRY

Time – 3 Hours.

Max. Marks – 50

Unit – 1 : Water – Soft and hard water, methods of removing hardness of water, drinking water and laundry water, estimation of water hardness

- a. Lubricants- Properties, classification and uses
- b. Dyes classification, based on application and functional group
- c. Fertilizers and manures : uses
- d. Freon Gas Composition and uses

Unit – 2 : 1. Tarnishing of metals, its Prevention and removal, Metal polishes: Organic coatings paints, pigments, wood polishes, shoe polish

2. Elementary idea of the chemistry of the following:

a. Polymers- classification and their uses

b. Bleaching powder, plaster of Paris

c. Soap, detergent and waxes

Unit – 3 : Fuels :

Classification, calorific value

Solid fuels – Wood, coal, types and selection

Liquid fuels- Petroleum, fractionation

Gaseous fuels- Bio gas, LPG, oil gas, coal gas.

Producer gas, Water gas

Non conventional fuel-Solar energy

Unit – 4 : Environmental pollution and its effect on human being eg. (C₄ H₅), Pb, Carbon monoxide and oxides of nitrogen sulphur dioxide, organic and mineral pollution of water, COD and BOD, Abrasives and adhesives

Unit – 5 : Chemotherapy

1. Common drugs and medicines, used at home

2. Narcotics and effects of over drugging – L.S.D. Heroine, Brown Sugar

3. Uses and Hazards of:

a. Cosmetics

b. Food preservatives and their effects on human body

c. X-ray and Isotopes eg. Co. 60, I181, p35, A74

d. Common insecticides, pesticides, and rodenticider eg., DDT, BHC, Aldrin gamexene, 2no

e. Antiseptics and Disinfectants

BOOKS RECOMMENDED

Mathur, N.L. and Jain: Applied Chemistry, (Hindi ed.) for Polytechnic Colleges

P.C. Jain and Monica Jain : Engineering Chemistry

Paper VIII
APPLIED Biology

Time – 3 Hours.

Max. Marks – 50

Unit – 1

Harmful pests to man: Outline of life history and control of rice weevil, khapra beetle, cockroach and termites.

Unit – 2

Human genetics: Human chromosomes normal and abnormal karyo types. Heredity and environment relationship as revealed by studies on human twins.

Unit – 3

Elementary idea of heredity human diseases and genetic abnormalities such as haemophilia, colour blindness, phenyl ketonuria, sickle cell anemia, mongolism and leukemia.

Unit – 4

- (A) Gardening : Introduction to home gardening.
Preparation and requirement of roof and veranda gardening and their management.
- (B) Kitchen Garden: Principle for planning of kitchen garden.
- a. Cultivation of vegetables, e.g. potato, tomato, cauliflower, carrot, cowpea and cucumber.
 - b. Cultivation of fruit trees for example Papaya, Guava, Lemon, Ber, Pomegranate (Anar).

Unit – 5

Economic Botany: Botanical names, family distribution and plant parts and their uses:

- a. Fibres: cotton, jute and coir.
- b. Beverages: tea, coffee and cocoa.

- c. Spices and condiments: cloves, cardamom, cumin, cinnamon, coriander, fennel, turmeric, pepper, asafoetida.
- d. Oils: coconut, groundnut, mustard, safflower, sunflower.
- e. Adulteration in oil and condiments (spices).

Books references.

1. Tyagi & Kshetrapal: An Introduction to Plant Taxonomy.
2. Purohit, S.S.: Home Gardening.
3. Bhojwani and Bhatnagar: Embryology of Angiosperm.
4. Verma, V: Plant Physiology.
5. Vidyarthi, R.D.: A Text Book of Zoology.
6. Agarwal, Kotpal and Khaterpal: A Text Book of Zoology (Invertebrate Zoology).
7. Tendon and Nigam: A Text Book of Zoology.
8. Adrian and Ray: General Genetics, Modern Asia Edition.
9. Genetics: A Survey of Principles of Heredity, Winchester, Indian Edition.
10. Verma and Agarwal: Cell Biology and Genetics.

Paper IX

HUMAN PHYSIOLOGY

Time – 3 Hours.

Max. Marks – 50

An elementary knowledge of subject is expected

Unit –1 : 1. Types of tissues

2. The skeletal system
 - a. Classification structure and functions of bones
 - b. The joints-classification, structure of a typical synovial joint
3. The muscular system: types of muscles, structure and functions

Unit –2 : 1. The nervous system:

- a. Structure and functions of brain and spinal Cord

- b. Autonomous Nervous system in brief
- 2. The Respiratory system: Structure and functions of Respiratory organs.
Mechanism of respiration, External and Internal tissue respiration, vital capacity,
Regulation of Breathing

Unit –3 : The vascular system:

- a. Composition and function of blood, blood groups, blood transfusion, blood banks, blood clotting
- b. Structure and functions of heart, blood vessels, blood circulation in the body, blood pressure and pulse rate

Unit –4 : The Digestive systems:

Structure and functions of the digestive organs, mechanism of digestion and absorption of proteins, fats and carbohydrate

The Excretory System:

- a. Structure and function of excretory organs, composition of Urine
- b. Structure and function of skin, regulation of body temperature

Unit –5 : The Endocrine system:

Endocrine glands of the body, role of hormones and effects of hypo and hyper activity

Structure and function of eye

Structure and function of ear

REFERENCE BOOKS

iz.kh dkf;Zdh & 'kkL=h jLrksxh ifCyds'ku tUrqdfZdh

'kekZ eqdqUnLo:i%'kjhj iznhfidk

A Text book of Medical Physiology: Guyton holt Saunder & Co.

Evelyn Pearce: Anatomy and Physiology for Nurses, Faber & Faher Ltd. London (Hindi Ed. also)