

# SYLLABUS

**B.Sc. HOME SCIENCE**



**JAI NARAIN VYAS UNIVERSITY  
JODHPUR**

Helpstudentpoint.com Syllabi 2016

**SYLLABUS**  
**BACHELOR OF SCIENCE**  
**B. Sc. (Home Science) Part I Examination, 2016**  
**B. Sc. (Home Science) Part II Examination, 2016**  
**B. Sc. (Home Science) Part III Examination, 2016**

**Introduction:**

Home Science as a field of Education is fully women oriented, preparing women for playing multifarious roles such as a professional career woman, an enlightened homemaker and awakened community worker.. Home Science syllabus has a built-in extension and outreach programme extending the knowledge to the masses. The requisitions of the department are directly in line with the focus of the eleventh plan fulfilling the key elements. The Home Science Department was established in the University in 1969 with Home Science only as a Subject in B.A. In 1991. B.Sc. Home Science programme was started in the department with an intake of 50 students per year. **The department became a Post Graduate department in 1999 offering specialization in M. Sc. (Final) in 3 areas-**

1. Clothing & Textile
2. Food & Nutrition
3. Human Development

**BACHELOR OF SCIENCE**  
**General Information for Students**

The course of study for the examination shall extend over a period of one year. The examination shall be conducted by means of written papers and practicals wherever prescribed.

**MEDIUM**

Candidates are not allowed to use any medium other than English or Hindi for answering question papers. For answering question papers in the subject of English the medium will only be English. For answering question papers in the subject of Hindi the medium will only be Hindi.

**English**

For answering question papers in the subject of English the medium will only be English. For answering question papers in the subject of Hindi the medium will only be Hindi.

**DIVISION**

For a pass, a candidate must secure 36% marks in each subject in theory and practicals separately.

Division will be awarded as follows:

I Division – 60% of the aggregate marks

II Division – 48% of the aggregate marks

III Division – 36% of the aggregate marks

Division is awarded on the aggregate of marks of all the subjects.

**Passing Marks**

For a pass, a candidate must secure 36% marks in each subject in theory and practicals separately.

Division will be awarded as follows:

I Division – 60% of the aggregate marks

II Division – 48% of the aggregate marks

III Division – 36% of the aggregate marks

i wkkZlka ds; lsk dk 60 ifr'kr & iFke Jskh  
i wkkZlka ds; lsk dk 48 ifr'kr & f}rh; Jskh  
i wkkZlka ds; lsk dk 36 ifr'kr & rrh; Jskh

## ATTENDANCE

### 0.78 A

- For all regular candidates in the Faculties of Arts, Education and Social Sciences, Law, Commerce and Engineering, the minimum attendance requirement shall be that a candidate should have attended at least 71% of the lectures delivered and the tutorials held taken together as well as 70% of the practices and sessionals from the date of her/his admission.
- Condonation of shortage of attendance: The shortage of attendance up to the limit specified below may be condoned on valid reasons:
  - Up to 6% in each subject plus 5 attendance in all in aggregate of the subject/papers be condoned by the Vice Chancellor on the recommendation of the Den/ Directory/ principal for under-graduate students and on the recommendation of the Head of the Department for the post Graduate classes.
  - The NCC/NSS Cadets sent out to parades and Camps and such students who are deputed by the University to take part in games, athletic or cultural activities may for purposes of attendance, be treated as present for the days of their absence in connection with the aforesaid activities and that period shall be added to their subject wise attendance.

Note : The attendance for supplementary student will be counted from the date of admission

### B. Sc (Home Science) Part – I Examination and Teaching Scheme

No.	Subject	Periods		Theory		Practical		
		Th.	Pr.	Max. Marks	Min. Marks	Max. Marks	Min. Marks	
I	Elements of Household Physics	3	2	50	18	30	11	
II	Elements of Textile Science	3	2	50	18	30	11	
III	Science of Human Development	3	2	50	18	30	11	
IV	Elements of Nutrition & Food Science	3	2	50	18	30	11	
V	Elements of Extension Education	3	3	50	18	30	11	
VI	Applied Physics	2	-	50	18	-	-	
VII	Applied Chemistry	2	-	50	18	-	-	
VIII	Applied Biology	2	-	50	18	-	-	
IX	Human Physiology	3	-	50	18	-	-	
		<b>25</b>	<b>11</b>	<b>450</b>		<b>150</b>	<b>--</b>	
<b>Total</b>							<b>600</b>	
X	Hindi/English (Foundation course)	<b>6</b>	<b>-</b>	<b>100</b>	<b>36</b>	<b>-</b>	<b>-</b>	

### B. Sc (Home Science) Part – II Examination and Teaching Scheme

Paper	Subject	Theory period per Week	Practical Period per Week	Examination Hours	Max. Mark	Min. Marks
Paper I	Human Development I (H.D. I) (Growth & Development:	3	*	-	50	

Paper II	Prenatal and Infancy Human Development II (H.D. II) (Development Aspects: Infancy to Old age)	3	-	-	50	36
Paper III	Home Management I (H. Mgt. I) (Principles of Home Management )	3	-	-	50	} 36
Paper IV	Home Management II (Housing and Home Furnishing)	3	*	-	50	
Paper V	Foods and Nutrition I (F.N. I) (Fundamentals of Nutrition)	3	-	-	50	} 36
Paper VI	Foods and Nutrition II (F.N. II) (Bio-Chemistry)	3	-	-	50	
Paper VII	Clothing & Textile I (Cl.T. I) (Textile Fibers and Fabric Construction)	3	-	-	50	} 36
Paper VIII	Clothing & Textile II (Cl.T. II) (Textile Chemistry)	2	*	-	50	
Paper IX	Extension Education I (Teaching and Learning in Extension Education)	3	*	-	50	18

\*Given Separately

	1	2	3	4	5	6	7
Practical Human Development	-	-	-	3	-	30	11
Practical Home Management	-	-	-	3	-	30	11
Practical food and Nutrition (Bio-Chemistry)	-	-	-	3	-	30	11
Practical Clothing and Textile (Textile and Laundry)	-	-	-	3	-	30	11
Practical Extension Education	-	-	-	2	-	30	11

### B. Sc (Home Science) Part – III Examination and Teaching Scheme

Paper	Subject	Theory period per Week	Practical Period per Week	Examination Hours	Max. Mark	Min. Marks
Paper I	Foods and Nutrition III F.N. III (Meal Planning and Diet Therapy)	3	*	-	50	} 36
Paper II	Foods and Nutrition IV F.N. IV (Food Science)	3	*	-	50	

Paper III	Home Management III H. Mgt. III (Family Economics)	2	-	-	50	} 36
Paper IV	Home Management IV H. Mg. IV (House Hold Equipment )	3	*	-	50	
Paper V	Human Development III (H.D. III) (Marriage and Family)	3	-	-	50	} 36
Paper VI	Human Development IV (H.D. IV) (Pre-School Children: Education, Guidance & Counseling)	2	*	-	50	
Paper VII	Clothing & Textile III (Cl.T. III) (Family Clothing and Historic Textile)	3	*	-	50	} 36
Paper VIII	Extension Education II (Ex. Edu.) (Extension Education in Home Science and Rural Development)	3	*	-	50	
Paper IX	Foods and Nutrition V F.N. V (Community nutrition)	2	-	-	50	18

\*Given Separately

	1	2	3	4	5	6	7
Practical Meal Planning and Therapeutic Diets	-	-	-	3	-	25	-
Practical Food Science	-	-	-	2	-	20	-
Practical Home Management	-	-	-	3	-	30	-
Practical Human Development	-	-	-	3	-	25	-
Practical Clothing	-	-	-	3	-	30	-
Practical Extension Education	-	-	-	2	-	20	-

## B. Sc (Home Science) I Year Examination 2016

### PAPER I: ELEMENTS OF HOUSEHOLD PHYSICS

M.M. : 50  
Time : 3 p/w

#### Unit I: Ventilation

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

#### Unit II: 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 III: 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 IV: 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 V: 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 I:**

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 II:**

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

**Unit III:**

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

**Unit IV:**

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

**Unit V:**

- 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**

**M.M- 30**  
 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 I:**

- 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 II:**

- 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 III:**

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 IV:**

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 V:**

- 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 I:**

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 II:**

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 III:**

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 IV:**

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 V:**

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 claims

Coding 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 I: 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 II: Introduction to Communication**

- a. Meaning
- b. Is communication an Art or Science
- c. Elements of Communication and their characters tics- 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 III: 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 IV: 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 V: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 I: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 II: 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 III: Household fitting :**

Electric lighting:

- Source of light: incandescent lamps, Fluorescent tubes, sodium, and mercury lamps  
neon sign, lamps with internal reflector
- Distribution of electricity in a house, phase, neutral and earth wires, cables fuse, plug  
switches
- Measurement of electric power, watt meter
- 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 IV: Modern Physics :**

Photoelectric effect : Photocell and their application.

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

- Semi conductors and insulators, Elementary idea of transistors
- 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 V: 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:

- Characteristics of sound: Loudness, pitch and quality
- Resonance, beats
- Musical scale-diatonic and tempered
- Musical instruments: Sitar, Harmonium and flute
- Human voice, Ultrasonic by bat
- 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 I:** Water – Soft and hard water, methods of removing hardness of water, drinking water and laundry water, estimation of water hardness

- Lubricants- Properties, classification and uses
- Dyes classification, based on application and functional group
- Fertilizers and manures : uses
- Freon Gas Composition and uses

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

- Elementary idea of the chemistry of the following:
  - Polymers- classification and their uses
  - Bleaching powder, plaster of Paris
  - Soap, detergent and waxes

**Unit III:** 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 IV:** Environmental pollution and its effect on human being eg. (C<sub>4</sub> H<sub>5</sub>), Pb, Carbon monoxide and oxides of nitrogen sulphur dioxide, organic and mineral pollution of water, COD and BOD, Abrasives and adhesives

**Unit V:** Chemotherapy

- Common drugs and medicines, used at home
- Narcotics and effects of over drugging – L.S.D. Heroine, Brown Sugar
- Uses and Hazards of:
  - Cosmetics
  - Food preservatives and their effects on human body
  - X-ray and Isotopes eg. Co. 60, I181, p35, A74
  - Common insecticides, pesticides, and rodenticider eg., DDT, BHC, Aldrin gamexene, 2no
  - 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 I:**

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

**Unit II:**

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

**Unit III:**

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

**Unit IV:**

- (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 V:**

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).

**Suggested Books**

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 I: 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 II: 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 III: 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 IV:** The Digestive systems:

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

The Excretory System:

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

**Unit V:** 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**

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'kekZ epltnLo: i% 'kjhj inhfik

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

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

**B.Sc. (Home Science) II Year Examination 2016**  
**HD – I: GROWTH & DEVELOPMENT: PRENATAL AND INFANCY**  
**PAPER- I**

M. M. : 50  
3 p/w

**Unit I:**

- Anatomy and physiology of male and female reproductive organs- Ovulation and sperm formation.
- Fertilization, menarche and menopause.
- Signs and symptoms of pregnancy.
- Common ailments during pregnancy and their managements.

**Unit II:**

- Prenatal period- stages in prenatal development: zygote, embryo and fetus.
- Teretogens: factors affecting prenatal growth and development.
- Disorders in pregnancy: Hypertensive preeclampsia, elcampsia, pernicious vomiting.
- Regular medical checkups: importance and schedule.

**Unit III:**

- Care of expectant mother.
- Preparation for confinement and arrival of new born.
- Delivery & birth process.
- Intensive new born care and APGAR test.
- Minor ailments of newborn and their management: colic, jaundice, napkin rash, umbilical infection, infection of eye and breast in new born.

**Unit IV:**

- Care during puerperium.
- Family planning methods including MTP and sterilization.
- Abortion and miscarriage: symptoms and care, different types of abortion.
- Child at birth: (i) Neonatal physique (ii) Sensory and motor reflexes (iii) Sleeping crying and emotional behaviour.

**Unit V:**

- Characteristics of human infant: from state of helplessness to gradual control over body and development of understanding of immediate environment.
- Physical development during infancy weight, height, closure of fontanelle and teething.
- Motor control: grasping, holding the head, seating, crawling, creeping and walking.