

UNIVERSITY OF RAJASTHAN, JAIPUR



SYLLABUS

SCHEME OF EXAMINATION AND
COURSES OF STUDY

FACULTY OF SCIENCE

B.Sc. Part-I (Home Science)

(10+2+3 Pattern)

2014 Exam.

B.S.C. PART-I (HOME SCIENCE)

(10+2+3 PATTERN)

The number of papers, marks for each paper together with the maximum marks required for a pass are shown in the scheme of examination against each subject separately. It will be necessary for a candidate to pass in theory as well as practical part of a subject paper, wherever prescribed separately. Classification of successful candidates shall be as follows:

First Division 60% } of the aggregate marks prescribed in honors
and subsidiary subjects of Pt. I, Pt. II and Pt. III
Second Division 40% } examination taken together

All the rest will be declared to have passed the examination if they obtain the minimum pass marks viz. 36% in each paper. No division shall be awarded at the Pt. I and Pt. II examination.

SCHEMATIC OF SCIENCE

Part-I (Home Science)

Scheme for B.Sc. Home Science Part I

Paper Subjects	Duration of Exam	Max Marks	Min Marks	No of	
				Th	Pr
Compulsory Subjects					
I General Hindi	3 hrs.	100	36		
2. General English	3 hrs.	100	36		
3. Elementary Computer	3 hrs.				
4. Environmental Sciences	3 hrs.	100	36		
Ia Introduction to fabric science	3 hrs.	50	18	2	
Practical	3 hrs.	50	18		2
II Development	3 hrs.	100	36	4	
Communication					
Practical	3 hrs.	50	18		2
III Foundation of Human Development	3 hrs.	50	18	2	
Practical <i>Methods of Human study</i>	3 hrs.	50	18		2
IV Introduction to Foods	3 hrs.	75	27	3	
Practical	3 hrs.	50	18		2
V Introduction to Home Management	3 hrs.	75	27	3	
Project	<i>3 hrs</i>	25	9		1
	<i>Internal Evaluation</i>				
VI Applied Life Sciences	3 hrs.	50	18	2	
VII Applied Physical Sciences	3 hrs.	50	18	2	
Total		675	19 + 8 = 27		

B.Sc. Home Science Part—I
Part I
Introduction to fabric Science

Theory : 2 hrs./wk (Theory) Max.Marks : 50
Exam : 3 hrs.

Question Paper will consist of 3 sections :

Section I- Consisting of 20 compulsory objective type questions carrying 10 marks

Section II- Consisting of 10 compulsory questions with short answers carrying 10 marks.

Section III Consisting of 3 Long essay type questions with 100% choice carrying 30 marks.

Note : All the three sections should cover the entire syllabus.

Unit I. Textiles fibres and their properties

- Classification of fibres
- Primary and secondary properties of textile fibres.
- Molecular structure of fibres
- Manufacturing process, properties and use of following fibres—
Cotton, Jute, Silk, Wool, Rayon, Nylon, Polyester, Polyamide
Acetate Rayon
- Recent developments in fibres.
- Basic principle of yarn making :
- Mechanical spinning (Cotton system, chemical spinning wet, dry, melt and other new methods)
- Types of yarns—Simple, Novelty, Metallic and texturised yarns.
- Properties of yarns—Yarn Numbering System, Twist, Tensile strength

Unit II. Fabric Construction Methods.

- Fabrics made from yarns
- Weaving, knitting, braiding, laving and netting
- Weaving
 - Types and parts of loom, stages in weaving
 - Basic Weaves (Plain, twill, and satins with variation)
 - Fancy Weaves-Pile, dobby and Jacquard.
- Knitting
 - Knitting Machines
 - Construction and properties of warp and welt knits.
- Fabrics made from fibres-Non woven - Felting
 - Bonding
 - Fabrics made from Non-fibrous materials sheets

Unit III. Textile Finishes

- Importance of finishing
- Classification of finishes.
- Preparatory process-desizing, scouring, bleaching
- Mechanical-Singeing, napping, shearing, desizing, shrinking, Tentexing, calendaring etc.
- Chemical-Scouring, bleaching, mercerizing etc.
- Functional finishes-Wrinkle resistant water resistant and repellent, flame retardant, durable press, soil resistant, anti pilling, anti microbial.
- Finishing with colour-Dyeing & printing-difference

Care and maintenance of textiles and apparel.

- Household laundry
 - Principles and methods of application
 - Laundering and care of following fiber fabrics-cotton, silk,

woolen and synthetics

- Industrial laundry
 - In hospitals and hotels
- Dry cleaning
 - Dry cleaning materials, equipment and process

Introduction to Fabric Science

(Practical)

Practical : 2 hrs/wks

MM : 50

Fabric study

- 1) Fabric study and identification-Visual Microscopic and Burning, chemical test of single and Blends : (only qualitative analysis)
- (2) Yarn-
 - (a) Yarn Count (b) Yarn Twist
- (3) Fabric-
 - (a) Thread Count and Balance (b) Crease Recovery (c) Dimensional stability (d) Colour fastness.
- (4) Identification of basic weaves and their design interpretation on graphs. Simple Weaving on Loom.
- (5) Removal of stains
- (6) Project on any one of the following :
 - Preparation of scrap book of fabrics
 - Industrial laundry.
 - Cleaning action of different detergents at different concentrations and temperatures.

References:

- Coabinan, BP, (1985). Textiles : Fibre to Fabric (6th Ed) New York : Gregg Division Gram Hill

- Collier, B.J. and Phyllis, G.T. (2001) Understanding tentiles. New Jersey. Prentice Hall
- D'Soiga, N. (1998) Fabric Care : India : New age International.
- Gosnami, B.C. Martin Dale, J.G. & Scardino, F.L. (1977). Textile yarns-Technology structure and applications. New York : John Wiley.
- Hall, A.J. (1975) The Standard Handbook of textiles. London : Newnes - butter wortf :-
- Tollen, N. & Saddler, J., Langford, A.L. & Kadolf, S.J. (1988) Textiles (6th Edition) New York: Mac millan.
- Jaseph, M.L. (1972) Introductory textile sconce (2nd Edition) New York : Holt, Rinehart and Winston
- Joseph, M.L. (1975) Essentials of textiles. New York : Holt, Rinehart and Winston.
- Torlta, P.G. (1978) Understanding textiles. New York Mac millan
- Wyne A. (1997) Textiles- The motivate Series. London :Mac millan
- Dhantyagi, S. Fundamentals of textiles & chair care.
- Hess, K.P. Textile Fibries of Their use, oxford and IBH Co. New Delhi. 1978
- Vidya Sagar, P.V. Handbook of Textiles
- Wingate, B. Isabel, Textile Fabrics and Their Selection

Paper II**Development Communication**

Theory : 4 hrs./wk (Theory) Max.Marks : 100

Exam : 3 hrs.

Question Paper will consist of 3 sections :

- Section I- Consisting of 20 compulsory objective type questions carrying 20 marks
- Section II- Consisting of 10 compulsory questions with short answers carrying 20 marks.
- Section III Consisting of 3 long essay type questions with 100% choice carrying 60 marks.

Note : All the three sections should cover the entire syllabus.

Objective

1. To sensitize the students and help them to understand the process of communication and its importance in development.
2. To develop skills in using various methods of communication.
3. To sensitize students to the interests and needs of the communication.

Unit I**Development Communication**

1. Concept meaning Purpose of communication, importance of communication and development.
2. Types of communication-
 - Verbal and Non-verbal
 - Intrapersonal and interpersonal.
 - Formal and informal.
 - Traditional and modern.

3. Communication through mass media—concept, characteristics of mass communication, mass communication media, functions of mass communication, advertising and effect of mass communication.

Unit II**Psychology of communication**

- Listening—concept, the listening process, types of listening, variables affecting listening, developing effective listening skills, feed back.
- Perception—Selective attention, types of perception.
- Learning—meaning, the learning process, laws and principles of learning and its implication in extension, adult learning.
- Motivation—meaning, types, Maslow's theory of motivation, motivating rural people and extension personal.

Unit III

1. The process of development communication—models of communication and key elements of communication.
2. Approaches of communication in development
 - (i) Individual - Personal visits, phone calls, letters.
 - (ii) Group - Lectures, Group discussions, group demonstration, excursions and field trips.
 - (iii) Mass approach - Electronic media and print media.
3. Audio visual aids—meaning, classification, importance, advantages, limitations and use.

Development Communication**(Practical)****Objective****MM : 50**

1. To develop skills in preparing various visual aids.
2. To develop skills in using visual aids for learning effective.

Content

1. Production of visual aids - Charts, Posters, Flashcards, transparencies.
2. Display material - Bulletin Board, Flannel graph board.
3. Giving demonstration and putting up exhibitions
4. Preparation of folk media of Rajasthan - puppets, songs, social drama, Phad, Hela Khayal.
5. Preparation of Printed material - Leaflets, holders, pamphlets

Evaluation 50

Duration of Exam 4

Internal assessment 20

Preparation of Visual aids 15

Display of given material/

Lesson Plan of Demonstration 10

Viva Voce 5

References :

- Directorate of Adult Education, Govt. of India. (1994) : New Delhi. Literacy Digest. National Literacy Mission.
- Hussain Institute for non-formal and continuing education.
- Kindervalter, Suzanne (1979): Non-formal Education as an Empowering Process, Centre for International Education, 285, Hills House South Amherst, Massachusetts 01003. USA, University of Massachusetts.

Mistry S.P. Non Formal Education 1998 Radha Publications 437814B, Ansari Road, Darya Ganj. New Delhi -110002.

Pillai, K.S. (1993): ABC of Non-Formal Education, 17-B, Indraprasth Estate, New Delhi, Indian Adult Education Association.

Rajani R. Stirurr-Non-Formal Education for Development. APH Publishing Corporation, 5, Ansari Road Darya Ganj New Delhi-10002

Reddy R.S. - Adult and Non-Formal Education 1999 Commonwealth Publisher.

Sharma SR - Reflections on Continuing and Non-Formal Education-1997 Pointer Publishers, S.M.S. Highway, Jaipur.

Singh Dev Raj-Infrastructure Planning for non-Formal Education-1995 Commonwealth Publishers.

Singh UK, Sudarshan KN. Non-Formal and Continuing Education, 1996 Discovery Publishing House, 4831/24, Ansari Road, Darya Ganj, New Delhi - 110002.

Srinivasn, Iyer (1977): Perspectives on Non-Formal Adult Learning 251, Park Avenue South, New York 10010. U.S.A, World Education Inc.

Paper III**Foundations of Human Development**

Theory : 2 hrs./wk

(Theory)

Max.Marks : 50

Exam : 3 hrs.

Question Paper will consist of 3 sections :

Section I- Consisting of 20 compulsory objective type questions carrying 10 marks

Section II- Consisting of 10 compulsory questions with short answers carrying 10 marks.

Section III Consisting of 3 long essay type questions with 100% choice carrying 30 marks.

Note : All the three sections should cover the entire syllabus.

Objective

1. To introduce the students to the field of Human Development- concepts, scope, dimensions and interrelations.
2. To sensitize the students to social and cross-cultural context in Human Development.
3. To understand important theories pertaining to Human Development.
4. To study the various research methods in Human Development.
5. To develop an appreciation of the significance of self.

Unit I

1. Multidisciplinary approaches to the study of Human Development-definitions, scope and contributions of fields of Psychology, Sociology, Anthropology, Medicine and Management and other related fields.
2. Determinants and factors of growth and development; Biological and Environmental.
3. Principles of growth and development.

Unit 2

1. Historical development of the field of Human Development as field of study.
2. Brief Introduction to Perspective and Theories of Human Development. (a) Erikson : Psychosocial Development.
(b) Freud : Psychosexual Development
(c) Piaget: Cognitive Development

3. Culture, Society, Family and Individual development.

4. Family Life Cycle

5. Human development from Indian and cross-cultural Perspective.

Unit 3

Qualitative and Quantitative methods of Human study :

1. Observation, Interview, Questionnaires, Records, Field notes. Standardized tests and Ethnography.
2. Research Design: Longitudinal and Cross-sectional, Survey and Experimental: Case studies.
3. Know yourself: Personal growth and Self appraisal
4. Aptitudes, Vocational Choices and Careers in Human development.

Methods of Human Study

(Practical)

Practical 2 hrs/wk.

MM 50

Objectives

- To introduce methods and application of studying Human Development.
- To initiate self-enquiring and understanding the self.
- To expose the students to various welfare institutions.
- To understand others.

Course Content

- To use and apply methods of Human study in different situations
- To learn to formulate tools for data gathering.
- Administration and scoring of the formulated and standardized instruments.
- To develop insights for self-analysis through instruments, per-

sonal narratives, role plays, essays and creative writing (and any other) for self-appraisal.

5. To visit selected (4-5) welfare institutions.

References :

1. Child Behaviour and Development - B. Kuppaswamy - Vikas Publishing House, Ghaziabad
2. Child Development - Hurlock - McGraw Hill, New York.
3. Child Development - Sarla Grover, Printwell Publishers, Jaipur.
4. Contemporary Fields of Psychology and Experiments - M. Rajarnanikar - Concept Publishing, New Delhi.
5. Fundamentals of Educational Research - R.A. Sharma
6. Psychology of Child Development - S. Bhattacharya - Sterling Publishers Pvt. Ltd, New Delhi.
7. Research Methodology - Methods & Techniques - C.R. Kothari - Wishwa Prakashan. New Delhi.
8. Theories of Personality - Hall, Lindzey and Cambell - John Wiley and Sons, New York.
9. Training Instruments in HRD and OD - Udai Pareek - Tata Mcgraw Hill Publishing Company Ltd, New Delhi.
10. विकासत्मक एवं समाज मनोविज्ञान - राजेश्वरी प्रसाद सिन्हा - भारती भवन, पटना।
11. बाल विकास एवं पारिवारिक सम्बन्ध - मथुरेश्वर पारीक - रिसर्च पब्लिकेशन्स, जयपुर।
12. बाल विकास एवं पारिवारिक सम्बन्ध - आशा पारीक - कॉलेज बुक डिपो, जयपुर।
13. बाल मनोविज्ञान : बाल विकास - डॉ. प्रीति वर्मा, डॉ. डी. एन. श्रीवास्तव, विनोद पुस्तक मंदिर।
14. मानव विकास के सोपान - पुरोहित, टंडन, कोरड़िया, अजमेर बुक कम्पनी, जयपुर।

Paper IV

Introduction to Foods

Theory : 3 hrs./wk

3 hrs.

(Theory)

Max.Marks : 75

This Paper will consist of 3 sections :

- Section I-** Consisting of 15 compulsory objective type questions carrying 10 marks
- Section II-** Consisting of 10 compulsory questions with short answers carrying 10 marks.
- Section III** Consisting of 3 long essay type questions with 100% choice carrying 45 marks.

Note : All the three sections should cover the entire syllabus.

Objective

This course will enable the students to

1. Understand the definition, concepts and functions of foods and nutrition.
2. To learn the structure, composition and nutritional contribution of various foods products.
3. To understand the effect of processing on food products.
4. To develop an ability to increase availability of food by preventing spoilage and through preservation.
5. To understand various food laws and labelling rules to obtain food safety.

Unit I

Definition and concepts of foods and nutrition. 1

Functions of Food-Physiological, psychological, social. 1

Basic food groups and adequate diet. Dietary guidelines for Indians 1.

Study of various food groups : With respect to their structure, composition, selection and cookery. Effect of heat, acid, alkali and salt

3

Energy giving foods

- Cereals
- Sugars
- Legumes - pulses and soya products
- Nuts and oil seeds
- Fats and oils

Body Building Foods

- Milk and milk products.
- Meat, fish, egg and poultry

Protective Foods

- Fruits
- Vegetables

Miscellaneous

- Tea, Coffee, Cocoa

Unit II**Effect of processing on food products**

- Milling
- Parboiling
- Malting
- Pasteurization
- Fermentation
- Germination
- Fortification
- Enrichment

Food Spoilage**Food Preservation-**

Principles and Preservation by

- high temperature
- low temperature
- preservatives
- high osmotic pressure
- dehydration
- radiation

5 **Adulteration** - Definition, common adulterants and their health2 **Safety**, food hygiene, food laws and labeling. 41 **Additives** : Food colours, preservatives, flavourants, spices
3 **Adjuvants**, emulsifiers, stabilizers, leavening agents. 54 **Pennion, M.** Introductory Foods. Eighth edition. Macmillan Publishing Company, New York. 1985.6 **Bogstrom, G.** Principles of Food Science, Vol I & II, The Macmillan Co., New York, 1968.2 **Charly, H.** Food Science. John Wiley & Sons Inc, New York, Second edition 1970.3 **Fraxier, W.C.** Food Microbiology. McGraw Hill book Co., New York, 1968.5 **Griswaid, R.M.** The Experimental Study of Foods. Houghton Mifflin Co. Boston, 1962.6 **Hughes, Osee.** Introductory Foods. The MacMillan Co, New York, 1962.7 **Hester R.E. and Harrison, R.M,** Food Safety and Food Quality Issues in Environmental Science and Technology. Royal Society of Chemists, Cambridge, 2001.6 **Lowe, B.** Experimental Cookery. John Wiley and Sons Inc, New York.2 **Manay, N.S. and Shadaksharaswamy M.** Food Facts and Principles. Second edition, New Age International Publisher, New Delhi 2001.2 **Meyer, L.H.** Food Chemistry, CBS Publishers and Distribution, Delhi, 1987.1 **Potter, N.N.** Food Science. 3rd Ed CBS Publishers and Distributors. Delhi, 1987.1 **Srilakshmi, B.** Food Science. New-Age International (P) Ltd. Publishers, New Delhi, 1997.8 **Swaminathan M.** Food Science Chemistry and Experimental Foods, The Bangalore Printing & Publishing Co. Ltd, Mysore, Banaglore 1990

15. अग्रवाल, गुप्ता एवं खट्टेडा, भोजन एवं पोषण, अजमेरा बुक कम्पनी, जयपुर 2001
सिंह वृन्दा।
16. Aina U, Kashyap S.K. Narula, V., Thomas, S., Suvira, Vir, S and Chopra, S., Complete Manual Cooking, Orient Longman Pvt. Ltd., New Delhi, Third edition, 2002.
17. Gupta. S., Seth, R., Khanna, K. and Mahna, R. Art and Science of Cooking - A Student's Manual, Blaze Publishers & Distributors Pvt Ltd., New Delhi, 1991.
18. Mathur, M., Goyle, A., Gupta, P. and Magon A. Book of Recipes. India Book House, Jaipur, 1995

Introduction to Foods

Practical 2 hr/wk

(Practical)

MM : 50

Unit I

Weights and measures, basic terms used in cookery, methods of cooking and table settings.

Unit II

Food preparation, understanding the principles involved, nutritional quality and portion size.

- (i) Beverages - Tea, coffee, mocktails, sodas, sundaes and milk shakes.
- (ii) Cereal cookery - Porridge, gruels, puri, chapati, paratha, pastas, pancakes, sandwiches and various rice preparations.
- (iii) Legumes and pulses - Whole dehusked, sprouted, Fermented products of various legumes and pulses. textured soybean products, tofu etc.
- (iv) Vegetables - Salads, curried and dry vegetable preparation.
- (v) Fruits - Salads and desserts.
- (vi) Milk and its products - Indian and western desserts, preparation of paneer, khoa, chnenna and curds.
- (vii) Meat, fish and poultry preparation.
- (viii) Eggs - Boiled, poached, fried, scrambled omelettes, souffles, custards.
- (ix) Soups - Clear and cream including Indian soups.
- (x) Snacks - (a) Baked, (cakes, biscuits),

- (b) Steamed,
(c) Fried (shallow and deep)

Paper V

Introduction to Home Management

3 hrs./wk

(Theory)

Max.Marks : 75

3 hrs.

The Paper will consist of 3 sections :

- I - Consisting of 15 compulsory objective type questions carrying 15 marks
- II - Consisting of 10 compulsory questions with short answers carrying 15 marks.
- III - Consisting of 3 long essay type questions with 100% choice carrying 45 marks.

All the three sections should cover the entire syllabus.

Objective

1. To understand the meaning of Resource Management and concepts related to management.
2. To apply managerial process to management of time, energy and money.
3. To understand saving, investment and credit pattern of family.
4. To develop good buy man ship skills and to become aware of rights and responsibilities of consumer.
5. To acquire awareness about consumer protective services and law pertaining to consumer protection.

Meaning and purpose of Home Management

1. Definition of management and its application to management of resources in the home.
2. Responsibilities of a home maker.
3. Obstacles to good management of resource in home.
4. Misconceptions about home management.

6

Concepts relevant to Home Management

Values : Definition, meaning and importance, classi-

fication of values, sources of values, factors affecting the changes in individual and family values.

- b. Standards: Meaning, types and importance of standards.
- c. Goals : Definition, meaning and importance and classification of Goals.
- d. Resources : Definition, characteristics of resources, and classification.
- e. Decision-making : Importance and types.
- f. Process of management : Planning, controlling, organizing and evaluating.
- g. Systems approach to management.

Unit II

The Management.

- a. Time as resource.
- b. Goals of time management
- c. Factors affecting time management
- d. Tools or specific aids in time management.
- e. Process of time management.

Energy Management

- a. Energy as a resource.
- b. Goals of energy management.
- c. Factors affecting energy management
- d. Fatigue - Types, causes and ways to overcome fatigue.
- e. Body Mechanics - Principles of body mechanics.
- f. Work Simplification - classes of change, techniques of time and motion studies.
- g. Ergonomics in Home - An introduction.

Unit III

Money Management

- a. Family as an economic unit.
- b. Family Income : Meaning, types and sources.
- c. Factors affecting variation in family expenditure.

70% marks will be internal and 30% marks will be external.

udgeting, meaning, importance, process of making budget and

- Meaning, sources, types and cost of credit.
- ing and investment: Meaning, objectives, methods and characteristics/criteria of good saving and investment plan.
- Meaning, need, types, basic calculation of income tax, Income tax returns.
- trusts Basic laws of property succession.

12

Consumer Buying Practices.

- Meaning and Definition.
- Consumer rights and responsibilities.
- Consumer buying motives : primary, selective, rational, emotional and patronage.
- Factors affecting consumers decisions.
- Consumer problems :
 - (i) Adulteration: definition, meaning, types, causes, effects and remedies.
 - (ii) Faulty weights and measures: Identification and redressal
 - (iii) Consumer protection services.
 - (iv) Bureau of Indian Standards.
 - (v) Consumer guidance society of India.
 - (vi) Govt. agencies and consumer protection laws.

Practical: I hr/wk

Introduction to Home Management - Project
MM: 25

Internal Assessment

- Practical identification of values & goals of selected families.
- To evaluate the time schedule of selected families.
- To study the time management practices of selected families.
- Develop pathway and process charts for various household activities
- Prepare budget for families of various income groups.
- Application of managerial process for various events of organizing a party on any occasion.
- Seminar presentation.

unit 3.
Evaluation of Project: A committee of three members constituted by Head, will evaluate the Project-report and conduct viva. JI

References

1. David H. Bangs, Jr.: The Market Planning Guides, 3rd Edn Gougotera Publishing.
2. Donnelly, J.H, Gibson, J.L and Ivancevich, J.M. (1995) Fundamentals of Management. Chicago.
3. Don Welers (1974); Who Buys-A study of the consumer.
4. Fisher, C.D. (1997); Human Resource Management Chennai All India Publishers and Distributors.
5. Gross I & Crandall E., (1963): Management for Modern Families. Appleton Century Craft, New York.
6. Gross I.H. Crandall, E.W. Crandall and Knoll. M.M. (1980) Management for Modern families.
7. Kale. M.G. (1998); Management and Human Resources.
8. Kolter Philip, Armstrong Garg (1992); Principles of Marketing 5th Edn. Practice Hall of India, New Delhi.
9. Leland, J. Gordon, Stewart, M, Lee (1974); Economics and Consumer, 7th Edn, S'Van Mostrand Co. New York.
10. Mullick, Premlata, (2000); Textbook of Home Science, Kalya Publishers, New Delhi.
11. Nickell P., and Dorsey J.M., (1970); Management in Family Living. Wiley Eastern Ltd. New Delhi.
12. Sarkar, A: Problems Consumers in Modern India; Discover Publishing-House.
13. Sherlekar, S.A. (1984); Trade Practices and Consumerism Himalays Publishing House, (Unit I, VI)
14. Steidl R.E. & Bralten E.C. Work in Home
15. Varghese M.A. Ogle M., Srinivasan K., (1985); Home Management Wiley Eastern Publishers, New Delhi.

Paper VI**Applied Life Science****Part A****(Applied Botany)****(Content) (Theory)**

Periods:20

to be set by Botany teacher and section B to be set by teacher.

Answer book to be issued for each section.

Botany M.M. : 25 Marks

I. Consisting of 10 compulsory objective type questions carrying 5 marks

II. Consisting of 5 compulsory questions with short answers carrying 5 marks.

III. Consisting of 1 long essay type question with 100% choice carrying 15 marks.

Note : All the three sections should cover the entire syllabus.

Basic Botany

1. Structure of flower with details of its parts.
2. Structure of an ovule and fertilization in Angiosperms. 4

Economic Botany

1. **Vegetables:** Cultivation, type of soil, varieties, disease and control. Potato, cauliflower, carrot, tomato, onion. 2
2. **Fruits :** Cultivation, type of soil, varieties, disease and control, Mango, papaya, guava.
3. **Spices and Condiments:**
Distribution, parts used Cardamom, pepper. (black & red), turmeric, asafoetida, Bay leaf, clove, garlic, ginger, Cinnamon, Cumin, Fennel, Coriander. 2
4. **Beverages:**
Distribution, parts used and their economic importance
Tea, coffee, cocoa. 2
5. **Oil seeds:**
Distribution, extraction and economic importance Ground-

nut, mustard, coconut, sunflower.

6. **Ornamental and foliage plants:** Method of cultivation and varieties Rose, Bugainvillea, fern, coleus, croton.

III. Cytology & Genetics

1. Cell structure and division, Mendel's law of Inheritance, plant breeding techniques, transgenic plants.

References

1. B. Choudhary : Vegetables (National Book of India, New Delhi 1979).
2. Dutta A.C. : Botany for Degree Students (Oxford University Press, New Delhi 1970)
3. J.L. Shreemali: Economic Botany (Kitab Mahal, Allahabad, 1982)
4. S. Kumar : Home Gardening.
5. Sudhir Pradhan : Economic Botany (a Anand Publications, New Delhi, 1995)

Paper VI
Applied Life Sciences
Part B
(Applied Zoology)

(Content) (Theory)

Time : 3 hrs.

Section A to be set by botany teacher and section B to be set by Zoology teacher.

Separate answer book to be issued for each section.

Part B

~~Section A~~ Zoology

- Max Mark : 50
- Section I- Consisting of 10 compulsory objective type questions carrying 5 marks
- Section II- Consisting of 5 compulsory questions with short answers carrying 5 marks.
- Section III Consisting of 1 long essay type questions and one short question in both with 100%, Choice carrying 15 marks

Note : All the three sections should cover the entire syllabus.

~~Theory~~ ~~24 hours~~

Outline life cycle and prevention of head louse, bed bug, termite, cockroach, round worm and hook worm. 5
Sericulture, pearl culture and poultry keeping. 5
Human Karyotype; sex determination; twins; sex linked disorders (Klienfeter, Superfemale, Turner syndromes, haemophilia, colour blindness); autosomal disorders (phenyle ketone uria, sickle cell anemia).

Paper VII
Applied Physical Science
Part A (Physics)

Time : 1 hr/wks
3 hrs.

(Theory)

Max. Marks: 50

Section A to be set by Physics teacher and section B to be set by Chemistry teacher.

Separate answer book to be issued for each section

~~Section A~~ ~~Physics~~ Max Marks : 25

Section I- Consisting of 10 compulsory objective type questions carrying 5 marks

Section II- Consisting of 5 compulsory questions with short answers carrying 5 marks.

Section III Consisting of 1 long essay type question and one short question in both with 100%, Choice carrying 15 marks.

Note : All the three sections should cover the entire syllabus.

Objectives

1. To give the basic concepts of various physical quantities and their measurement to give the practical application based on these quantities
2. To give the basic principles on which the various household gadgets work.
3. To impart knowledge of household electricity and knowledge regarding construction and working of various household gadgets.
4. To make the students aware of developments in modern physics.
5. To study the conventional and non-conventional sources of energy and study the various methods to conserve them.

Unit I**Mechanics**

- Concepts of measurements and units of length, mass and time in CGS, MKS and British systems and their interrelationship.
- Frictions: Static, kinetic/sliding and rolling. Use of wheels, examples where friction is desirable/undesirable, methods of reducing friction: use of ball-bearing and lubricants.
- Simple machines: mechanical advantage, velocity ratio and efficiency of simple machines: levers, pulleys, screw, wedge, physical principle in body machines (human arm, lower jaw and foot) Simple physical balance and single pan digital weighing machines.
- Mechanical appliances: Food processor, washing machine, vacuum cleaner, mechanics of liquids and gases: Thrust and pressure
- Application of Pascals law: hydraulic pressure fluid breaks.
- Domestic water supply: for city, for house, water pumps, principle of Siphon: flush latrine.

Heat

- Measurement of temperature- various types of thermometers: maximum minimum thermometer, clinical thermometer.
- Household gadgets-Refrigerator, air conditioner, desert cooler, pressure cooker, water heaters, irons, gas and electric cooking ranges, O.T.G. microwave oven.
- Solar energy and its applications: Solar cooker, solar water heater and air dryers.

Unit II**Light:**

- Illumination, illuminating power, intensity of illumination of light sources.
- Lighting fixtures: Fluorescent tube, incandescent lamp, CFL, night lamps, halogen lamps.
- Eye-defects and their correction.

instruments-camera, binoculars, microscope, overhead projector, LCD's

Electricity

of electricity energy-generation and efficient transmission of electric power.

Primary cells, secondary cells, rechargeable cells, solar cells, fluorescent tubes, illuminator, invertors. UPS.

Electric wiring at home and its safety features (fuse, MCB, earthing), staircase lightning circuit, electric meter.

III**Modern Physics and Electronics**

X-rays, radioactivity, their application in various fields.

Elements of radio, television, tape recorder, UPS, stabilizer, inverter, generator etc.

Junction diode, IC's - elementary concept only.

Laser and its applications.

Energy - conventional and non-conventional sources of energy and energy conversion and conservation.

References

1. Lal S., 1995, Fundamental Physics, Pradeep Publications.
2. Sharma S.P., 1995 Basic radio and television, Tata McGraw-Hill, H.U. Publishing Co.
3. Pect and Pickett, 1975, Household equipment, John Wiley and Sons (U.S.A.).
4. Madalyn avny, 1956, Household Physics, The Macmillan (out of print) Company New York.
5. Partab H., 1987, Electrical Gadgets, Dhanpat Rai and Sons.
6. Bhatia K.B., 1993, Elements of Electrical Gadgets, Arya Book Depot.
7. Rao S.R. 1987, Electrical gadgets and their repair. Pitamber book depot.

8. Singh N., 1995 . Refrigeration and Air conditioning. Technical publisher.
9. Kohli S. and Yadav S.D., 1994, Household (A laboratory manual). Phoneix Publishing Private limited.
10. Solar energy by S.P. Sukhatme, 2001, Tata Mcraw-Hill Publishing C.
11. गृह भौतिकी by Prof. M.G. Bhatvadeker, हिन्दी ग्रंथ अकादमी, जयपुर

Paper VIII
Applied Physical Science
Part B (Chemistry)

Theory : 1 hr/wks

Max Marks: 50

Exam : 3 hrs.

Section A to be set by Physics teacher and section B to be set by chemistry teacher.

Separate answer books to be issued for each section.

Part B ~~Section A~~ **Chemistry** **M.M. : 25**

Section I- Consisting of 10 compulsory objective type questions carrying 5 marks

Section II- Consisting of 5 compulsory questions with short answers carrying 5 marks.

Section III Consisting of 1 long essay type question and one short question in both with 100%, Choice carrying 15 marks.

Note : All the three sections should cover the entire syllabus.

Unit I

Fundamentals of chemistry: Structure of atom, electron, proton, neutron, atomic number, atomic weight, Valency and Tetrahedral structure of carbon.

Volumetric Analysis: Normal and molar solutions, Theory of "Titration, indicators: pH, buffer, simple numericals.

Environmental (air and water) pollution, kinds and effects of pollutants (Co, oxides of N₂, S (C₂ H₃) Pb, F) on human beings.

and water, removal of hardness, chemicals used in
 and cosmetics, perfumes, talcum powder, coloring
 air bleaching. 3

and corrosion metals, prevention and control of cor-
 household metals (Al, Cu and precious metals) metal
 common cleaners, polishes. 4

Classification and properties of High Polymers, Basic knowl-
 Plastics and Resins. 2

of medicines-Antipyretics, Analgesic, Antiseptics,
 antibiotics

Gupta, R.K. and Amit R.K, A Textbook of General Chemistry.
 Anbant Prakashan Kalindi, T.P. Nagar Meerut 2003

Verma, N.K., Khanna S.K and Kapila. P. Comprehensive Chem-
 istry. Eastern Publications (P) Ltd. New Delhi 2003-2004.

Timmy Katyal and Satake M. Environmental Pollution ed. Raj
 Kumar Anmol Publications New Delhi. 1990

Sarla Marchanda., Sushma Goel, Savita Rammurthy and Arehna
 Kumar : Household materials. A manual for care and mainte-
 nance, Wheeler Publishing 1996.

UNIVERSITY OF RAJASTHAN JAIPUR

RULES FOR THE AWARD OF GRACE MARKS

A. UNDER—GRADUATE/POST—GRADUATE (MAIN/SUPPLEMENTARY) EXAMINATION UNDER THE FACULTIES OF ARTS, FINE ARTS, SCIENCE, COMMERCE, SOCIAL SCIENCES, EDUCATION, MANAGEMENT, HOMOEOPATHY, LAW, AYURVEDA AND ENGINEERING & TECHNOLOGY.

Grace marks to the extent of 1% of the aggregate marks prescribed for an examination will be awarded to a candidate failing in not more than 25% of the total number of theory papers, practicals, sessionals, dissertation, viva-voce and the aggregate, as the case may be, in which minimum pass marks have been prescribed; provided the candidate passes the examination by the award of such Grace Marks. For the purpose of determining the number of 25% of the papers, only such theory papers, practicals, dissertation, viva-voce etc. would be considered, of which, the examination is conducted by the University.

N.B. : If 1% of the aggregate marks of 25% of the papers works out in fraction, the same will be raised to the next whole number. For example, if the aggregate marks prescribed for the examination are 450, grace marks to the extent of 5 will be awarded to the candidate, similarly, if 25% of the total papers is 3.2 the same will be raised to 4 papers in which grace marks can be given.

B. DIPLOMA IN PHARMACY, BACHELOR OF PHARMACY, B.Sc. (NURSING) AND B.D.S. EXAMINATIONS

1. A Student who obtains the required minimum pass marks in the total aggregate but fails to obtain the minimum pass marks in (i) two subjects, (ii) in one subject and in one practical or (iii) in two

as the case may be, will be given grace marks according to the following scale, provided the candidate passes the examination by the award of such grace marks.

marks above	
min. aggregate	: 2 grace marks
12 marks above	
min. aggregate	: 3 grace marks
18 marks above	
min. aggregate	: 4 grace marks
and above the min. aggregate	: 5 grace marks

in theoretical and practical tests (wherever held) in a subject will count as 2 subjects.

In case it is necessary to secure minimum pass marks in one part of a subject the above rule will be applicable as follows.

If a candidate fails in the compulsory part of the subjects as well as in the whole subject, he will be deemed to have passed in the subject if the greater of the two deficiencies or where the two deficiencies are equal, one of them is covered by the grace marks in which he is entitled under the rules.

No grace marks would be awarded to a candidate who appears in the supplementary examination.

M.B.B.S. AND B.A.S.L.P. (BACHELOR OF AUDIOLOGY, SPEECH AND LANGUAGE PATHOLOGY) EXAMINATIONS

The grace marks upto a maximum of 5 marks will be awarded to a student who has failed only in one subject (Theory and/or practical) but has passed in all other subjects.

- No grace marks would be awarded to a candidate who appears in part/supplementary examination.

General

- A candidate who passes in a paper/practical or the aggregate by the award of grace marks will be deemed to have obtained the necessary minimum for a pass in that paper/practical or in the aggregate and shown in the marks sheet to have passed by grace. Grace marks will not be added to the marks obtained by a candidate from the examiners nor will the marks obtained by the candidate be subject to any deduction due to award of grace marks in any other paper/practical or aggregate.
- If a candidate passes the examination but misses First or Second Division by one mark, his aggregate will be raised by one mark so as to entitle him for the first or second division, as the case may be. This one mark will be added to the paper in which he gets the least marks and also in the aggregate by showing +1 in the tabulation register below the marks actually obtained by the candidate. The marks entered in the marks-sheet will be inclusive of one grace mark and it will not be shown separately.
- Non-appearance of a candidate in any paper will make him ineligible for grace marks. The place of a passed candidate in the examination list will, however, be determined by the aggregate marks he secures from the examiners, and he will not, by the award of grace marks, become entitled to a higher division.
- Distinction won in any subject at the examination is not to be forfeited on the score that a candidate has secured grace marks to pass the examination.

Note: The grace marks will be awarded only if the candidate appears in all the registered papers prescribed for the examination.

UNIVERSITY OF RAJASTHAN JAIPUR

RULES FOR THE AWARD OF GRACE MARKS

**UNDER GRADUATE/POST GRADUATE (MAIN/
SUPPLEMENTARY) EXAMINATIONS UNDER THE
FACULTIES OF ARTS, FINE ARTS, SCIENCE,
COMMERCE, SOCIAL SCIENCE, EDUCATION,
MANAGEMENT, HOMOEOPATHY, LAW, AYURVEDA
AND ENGINEERING & TECHNOLOGY.**

Grace marks to the extent of 1% of the aggregate marks prescribed for an examination will be awarded to a candidate failing in not more than 25% of the total number of theory papers, practicals, sessionals, dissertation, viva-voce and the aggregate, as the case may be, in which minimum pass marks have been prescribed; provided the candidate passes the examination by the award of such Grace Marks. For the purpose of determining the number of 25% of the papers, only such theory papers, practicals, dissertation, viva-voce etc. would be considered, of which, the examination is conducted by the University.

N. B. : If 1% of the aggregate marks or 25% of the papers works out in fraction, the same will be raised to the next whole number. For example, if the aggregate marks prescribed for the examination are 450, grace marks to the extent of 4.5 will be awarded to the candidate, similarly, if 25% of the total papers is 3.2, the same will be raised to 4 papers in which grace marks can be given.

B. DIPLOMA IN PHARMACY, BACHELOR OF PHARMACY, B.Sc. (NURSING) AND B.D.S. EXAMINATIONS

1. A Student who obtains the required minimum pass marks in the total aggregate but fails to obtain the minimum pass marks in (i) two subjects, (ii) in one subject and in one practical or (iii) in two practicals, as the case may be, will be given grace marks according to the following scale, provided the candidate passes the examination by the award of such grace marks.

For 1 to 6 marks above the min. aggregate : 2 grace marks

For 7 to 12 marks above the min. aggregate : 3 grace marks

For 14 to 18 marks above the min. aggregate : 4 grace marks

For 19 and above the min. aggregate : 5 grace marks

- (i) The theoretical and practical tests (wherever held) in a subject will count as 2 subjects.
- (ii) In case it is necessary to secure minimum pass marks in one part of a subject the above rule will be applicable as follows.

"If a candidate fails in the compulsory part of the subject as well as in the whole subject, he will be deemed to have passed in the subject if the greater of the two deficiencies or where the two deficiencies are equal, one of them is covered by the grace marks to which he is entitled under the rules.

Grace marks would be awarded to a candidate who appears in part/supplementary examination.

B.A.S.L.P. (BACHELOR OF ANTHROPOLOGY, SPEECH AND LANGUAGE PATHOLOGY) EXAMINATIONS

Grace marks upto a maximum of 5 marks will be awarded to a student who has failed only in one subject (theory and/or practical) but has passed in all other subject. No grace marks would be awarded to a candidate who appears in part/supplementary examination.

A candidate who passes in a paper/practical or the aggregate by the award of grace marks will be deemed to have obtained the necessary minimum for a pass in that paper/practical or in the aggregate and shown in the marks sheet to have passed by grace. Grace marks will not be added to the marks obtained by a candidate from the examiners nor will the marks obtained by the candidate be subject to any deduction due to award of grace marks in any other paper/practical or aggregate.

2. If a candidate passes the examination but misses First or Second Division by one mark, his aggregate will be raised by one marks so as to entile him for the first or second division, as the case may be. This one mark will be added to the paper in which he gets the least marks and also in the aggregate by showing +1 in the tabulation register below the marks actually obtained by the candidate. The marks

entered in the marks-sheet will be inclusive of one grace mark and it will not be shown separately.

3. Non appearance of a candidate in any paper will make him ineligible for grace marks. The place of a passed candidate in the examination list will, however, be determined by the aggregate marks he secures from the examiners, and he will not, by the award of grace marks, become entitled to a higher division.
4. Distinction won in any subject at the examination is not to be forfeited on the score that a candidate has secured grace marks to pass the examination.

Note : The grace marks will be awarded only if the candidate appears in all the registered papers prescribed for the examination.
