UNIVERSITY OF PUNE

Second Year Syllabi For The
Three-Year Integrated Bachelor of
Science (B.Sc.) In Home Science
Degree Course

To be introduced from
Academic Year 2009–2010

UNIVERISTY OF PUNE
B.Sc. (Home Science)

Second Year –

Second year B.Sc. Home Science curricular includes two semesters.

### Semester – III

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Subject</th>
<th>Exam Scheme</th>
<th>Theory</th>
<th>Practical</th>
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<td>Max. Marks</td>
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<tr>
<td>13</td>
<td>Extension Education</td>
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<td>100</td>
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<tr>
<td>14</td>
<td>Child Development / Human Development II</td>
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<td>100</td>
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### Semester – IV

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<td>Max. Marks</td>
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<td>Textile Science &amp; Care</td>
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<td>Home Science Extension and Communication Technology</td>
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<td>Basic Nutritional Biochemistry</td>
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Semester - III
# Paper- 11 : Food Science & Nutrition

Theory - 4 lec/ week  
Practical – 2  
Theory-100 marks  
Practical-25 marks

<table>
<thead>
<tr>
<th>Unit : I</th>
<th>Concept of food science</th>
<th>8</th>
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<tbody>
<tr>
<td></td>
<td>Definition</td>
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<td></td>
<td>Scope &amp; application.</td>
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<td>Industry</td>
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<td></td>
<td>Community</td>
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<td>Hospital</td>
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<td></td>
<td>Catering units.</td>
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<table>
<thead>
<tr>
<th>Unit II</th>
<th>Protein Foods</th>
<th>10</th>
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<tbody>
<tr>
<td></td>
<td>Classification, composition, denaturation, non enzyme browning &amp; other chemical changes.</td>
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<tr>
<td></td>
<td>Milk &amp; milk products.</td>
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<tr>
<td></td>
<td>Dairy products.</td>
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<td></td>
<td>Eggs.</td>
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<td></td>
<td>Poultry &amp; Meat</td>
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</table>

<table>
<thead>
<tr>
<th>Unit III</th>
<th>Legumes &amp; Pulses</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Structure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Composition</td>
<td></td>
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<td></td>
<td>processing</td>
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<tr>
<td></td>
<td>Toxic contents.</td>
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</table>

<table>
<thead>
<tr>
<th>Unit IV</th>
<th>Vegetables &amp; Fruits</th>
<th>10</th>
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</table>

<table>
<thead>
<tr>
<th>Unit V</th>
<th>Fats &amp; Oils.</th>
<th>10</th>
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</table>

<table>
<thead>
<tr>
<th>Unit VI</th>
<th>Other foods</th>
<th>10</th>
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<tbody>
<tr>
<td></td>
<td>Condiments &amp; spices</td>
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<td>Leavening &amp; shortening agents</td>
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<td>Salt &amp; substitutes.</td>
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</tbody>
</table>
Practical Based on Subject 11) Food science and Nutrition

1. Effect of solutes on boiling point and freezing point of water. 1 x 3 hrs.
2. Effect of types of water on characteristics of cooked vegetables, pulses and cereals. 1 x 3 hrs.
3. Sugar and Jaggery Cookery – Relative sweetness, Solubility and size of sugars, stages of sugar cookery, caramelization, crystallization, factors affecting crystal formation. 2 x 3 hrs.
4. Leavened products – Fermentation- Use of Micro organisms (lactic acid, Yeast) steam as an agent, egg as an agent chemical agents. Leavening power of different leavening agents. 2 x 3 hrs.
5. Fish and Sea Food – effects of different cooking methods on various fish and sea foods. 2 x 3 hrs.

References

Paper – 12: - Home Management

Theory - 4 lec/ week
Practical – 2

Theory-100 marks
Practical-25 marks

Unit I  Introduction to Art and design  10
- Art meaning, definition, objectives, elements & principles
- Design – Meaning, definition & types
- Interior designing.

Unit II  Colours  10
- Colours – importance
- Dimensions of colour – Hue value & Intensity.
- Classification of colours.
- Colour schemes.
- Application of colour scheme.

Unit III  Flower Arrangement  11
- Importance of flower Arrangement
- Materials required for flower Arrangement
- Different types of flower Arrangement.
- Flower arrangement for different occasions.

Unit IV  Family Housing  10
- Needs – Protective, economic, officinal, social, standard of living, housing goals style, function occupation.
- Factors affecting selection & purchase of site.
- Housing Schemes.

Unit V  Residential Furnishing  10
- Selection of furniture
- Arrangement of furniture for living, Bedroom, dining & multipurpose room.
- Furnishing fabrics – floor, covering, draperies, certain, table, bed,
- Accessories.
### Reference:

1. Art in every day life – Goldstein & Goldstein.
2. Home furnishing
4. Inside today’s Home – Favlkner Richart
5. Introduction to Home furnishing state Macmillan

### Practical Base on Subject 12) Home Management

<table>
<thead>
<tr>
<th>Task</th>
<th>Duration</th>
</tr>
</thead>
</table>
| 1) Preparation of colour wheel & Dimension of colour                 | 2 x 3 hrs.
| 2) Colour schemes on paper Rangoli flower arrangement.               | 2 x 3 hrs.
| 3) Illustration of element of design and principles of design        | 2 x 3 hrs.  
| line, farm, textre space, pattern, proportion, balance, rhythm,     | 2 x 3 hrs.  
| emphasis Harmony.                                                    |           |
| 4) Development of designs and construction of floor covering,        | 1 x 3 hrs.  
| contains, cushions, picture frame etc.                               |           |
| 5) Visit to residential House.                                       | 1 x 3 hrs.  |
# Paper – 13: Extension Education

**Theory** - 4 lec/ week  
**Practical** – 2  
**Theory-100 marks**  
**Practical-25 marks**

<table>
<thead>
<tr>
<th>Unit</th>
<th><strong>Extension Teaching</strong></th>
<th><strong>10</strong></th>
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</thead>
</table>
|      | - Meaning and principles of Teaching  
|      | - Steps in Extension Teaching  
|      | - Difference between formal and extension teaching.  
|      | - Classification of Extension Teaching methods and techniques  
|      | - Selection and uses of various teaching methods in combination for effective extension teaching. |

<table>
<thead>
<tr>
<th>Unit</th>
<th><strong>Communication Process</strong></th>
<th><strong>10</strong></th>
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</thead>
</table>
|      | - Meaning and definitions of communication process.  
|      | - Need and Importance of communication in extension.  
|      | - Elements of communication process.  
|      | - Models of communication process.  
|      | - Barriers in communication process and their solutions.  
|      | - Verbal and non verbal communication. |

<table>
<thead>
<tr>
<th>Unit</th>
<th><strong>Communication Methods</strong></th>
<th><strong>11</strong></th>
</tr>
</thead>
</table>
|      | - Group communication methods.  
|      | - Classification of Group communication methods.  
|      | - Information centered methods.  
|      | - Behaviour centered methods.  
|      | - Advantages and limitation of group communication methods.  
|      | - Concept ad purpose of mass communication.  
|      | - Classification of mass communication methods as written, spoken and Audio visuals.  
|      | - Advantages and limitations of mass communication methods. |

<table>
<thead>
<tr>
<th>Unit</th>
<th><strong>Appropriate Technology in Home Science</strong></th>
<th><strong>10</strong></th>
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</thead>
</table>
|      | - Meaning and significance of appropriate technologies.  
|      | - Need and Importance of appropriate technologies used in Home.  
|      | - Appropriate technologies in different areas of Home Science.  
|      | - Application of technologies in Home and Agriculture. |
Unit V  Vocationalisation in Home Science  

- Need and significance of vocationalisation in Home Science.
- Introduction of various vocational courses and job opportunities in different areas of Home Science.

Reference :-

1) Introduction to Home Science – Dr. Arvindo Chandra
2) Text Books of Home Science – Dr. R. P. Devdas
3) Hand Book of A. V. Aids - Mohanty B. B., Kitab Mahal
4) Extension and communication for development, O. P. Dahama and Bhatnagar
5) Non formal education for all Arvinda Chandra and Anupana Shah, sterling publishers Pvt. Ltd. New Delhi.
7) Communication and social development in India, B. Kuppuswamy, sterling publication Pvt. Ltd. New Delhi.
8) Extension education in community development, Directorate of extension ministry of food and agriculture govt. of India New Delhi.
9) An introduction to extension education Dr. S. V. Supe.
10) Sky is the limit practical guidelines on effective career planner, Singh R. H., Chandra Publication, Bombay 5.

Practical Based on Subject 13) Extension Education  

1) Study of existing communication tools for message courage and cost and impact. 3 x 3 hrs.
2) Preparation of suitable communication tools for mass Communication charts, posters, flash cards etc. 3 x 3 hrs.
3) Planning and implementation of a project on appropriate Technologies in Home Science. 2 x 3 hrs.
Paper No. 14 : Child Development / Human Development II

Objectives:
To introduce / create awareness of important aspects development from adulthood to old age.

Unit I Puberty stage (11 to 14yrs) (10)

- Characteristics
- Physical, emotional, physiological changes
- Growth spurt
- Primary and secondary sex characteristics.

Unit II Adolescence (12 to 18 yrs) (10)

- View of storm and stress
- Characteristics
- Developmental task
- Emotional, social, moral, cognitive development during adolescence.
- Identity crisis, counselling for educational and vocational.
- Visit to civil hospital.
<table>
<thead>
<tr>
<th>Unit III :</th>
<th>Young adulthood (21 to 40 years )</th>
<th>(8)</th>
</tr>
</thead>
</table>
| • Characteristics  
  • Developmental task.  
  • Responsibilities & adjustments by adult. |

<table>
<thead>
<tr>
<th>Unit IV :</th>
<th>Middle adulthood (40 to 60 years )</th>
<th>(10)</th>
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</thead>
</table>
| • Characteristics  
  • Developmental task.  
  • Physical changes  
  • Menopause.  
  • Effect on psychological behaviour.  
  • Adjustments. |

<table>
<thead>
<tr>
<th>Unit V :</th>
<th>Late Adulthood/ Old age. (51 onwards)</th>
<th>(10)</th>
</tr>
</thead>
</table>
| • Characteristics, physical & psychological changes.  
  • Health problems, cognitive & memory changes.  
  • Psychological changes.  
  • Adjustment by old people & with old people.  
  • Retirement –its effects.  
  • Issues – attitude towards aged, loneliness, old aged home illness. (Prolonged)  
  • Death.  
  • Visit to old age home. |
Semester IV
## Paper –15: Textile Science and Care

**Theory** - 4 lec/ week  
**Practical** – 2

<table>
<thead>
<tr>
<th>Theory-100 marks</th>
<th>Practical-25 marks</th>
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</table>

### Unit I  
**Yarn**
- Type, yarn twist, yarn count, yarn cringe and strength, yarn manufacturing process.

### Unit II  
**Classification of finishing process**
- Personal finish, durable finish, temporary finish, renewable finish
- Finishing Process – Mercerising, sanforising, sizing, Tentering, crease, resistant, waterproof, shearing, creping, embossing, moistening, napping, fire proof, beetling, Brushing, Glazing, calendaring.

### Unit III  
**Essentials of Designs**
- Elements of Design – Colour systems and schemes – principles and design.
- Classification of design – structural and decorative realistic, absent, stylized and geometric.
- Layout in design – repeal.
- To create a successful textile design for reproduction by different methods.

### Unit IV  
**Methods of Printing**
- Fundamentals of printing study of dyes and pigments for printing.
- Hand printing painting, stencil, Block, Spray, flock
- Heat transfer, photo, lacquers.

### Unit V  
**Weaving.**
- Principles and basic weaves
- Introduction to basic hand embroidery stitches, knitting, principles and classification, knitting machines their nomenclature and uses.
References

4. Shenai V. A. Technology of Textile finishing.
5. Grosiki Wastons ‘Textile Design and Colour’
9. Gazettes of India.
22. Chattopadhyay and Kamala Devi (1875) – Handicrafts of India, New Delhi, Indian Council of Cultural Relations.
24. Marg – Embroidery
25. Calico – Embroidery
30. Clothing for family – By Tale and elision.
Practical Based on Subject 15) Textile Science & Care 24

1. Study of yarn types, yarn size, thread count, bow, shewness. 1 x 3 hrs.

2. Study of common fabrics available in the market, removal of common stains from different fabrics. 1 x 3 hrs.

3. Demonstration of on laundry equipments, washing, finishing and storage of following textile articles cotton, silk, wool, synthetic, other special articles – Zari, embroidered fabric, lace, designing and scoring of yarn and fabric, bleaching of cotton. 3 x 3 hrs.

4. Visit to processing unit and Report writing. 1 x 3 hrs.

5. Preparation of an album in the regional embroidery. 1 x 3 hrs.

6. Preparation of fabrics for dyeing; tie and dye, block printing. 1 x 3 hrs.
Paper – 16 : Home Science Extension and Communication Technology

Theory - 5 Hrs./Week   Theory - 100 Marks
Practical - 1 Hrs./Week  Practical - 25 Marks

Objectives:
1) To know the meaning and importance of programme planning and evaluation.
2) To understand the role of communication and technology in process of communication.
3) To create an awareness regarding varied technology and its role in communication.
4) To develop awareness regarding the status of women.
5) To help the student to develop awareness regarding population problems.

<table>
<thead>
<tr>
<th>Unit I</th>
<th>Programme planning</th>
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<tbody>
<tr>
<td></td>
<td>• Meaning, definition, objectives and principles of programme planning.</td>
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<tr>
<td></td>
<td><strong>Process of programme planning steps</strong></td>
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<tr>
<td></td>
<td>• Study of the situation</td>
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<td>• Identification of the problem</td>
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<td></td>
<td>• Formulation of the objectives</td>
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<td>• Plan of work</td>
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<td>• Executive of the plan</td>
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<td>• Evaluation</td>
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<td>• Reconsideration</td>
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<td><strong>Evaluation</strong></td>
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<tr>
<td></td>
<td>• Meaning and importance of evaluation</td>
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<tr>
<td></td>
<td>• Types of evaluation and steps of evaluation</td>
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<tr>
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<td>• Data collection – types and methods of data collection</td>
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<td>• Analysis of data</td>
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<th>Unit II</th>
<th>Population education</th>
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<tbody>
<tr>
<td></td>
<td>• Meaning, definition, need of population education.</td>
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<tr>
<td></td>
<td>• Objectives of population education</td>
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<tr>
<td></td>
<td>• Population growth in India, its rate and reason</td>
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<tr>
<td></td>
<td>• Concept related to population – birthrate, death rate, growth rate, sex ratio, fertility</td>
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<td></td>
<td>• Effect of population explosion – on economic development, education, health, housing status etc.</td>
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<td>• Women contribution to check population</td>
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<tr>
<td>Unit III</td>
<td>Women education</td>
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<tr>
<td>• National organization dealing with issues of women</td>
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<td>• Social welfare board – organizational services</td>
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<td>• SEWA</td>
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<td>• Rehabilitation centre</td>
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<td>• Legal and family counseling</td>
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<tr>
<td>• Profile of urban and rural, tribal hill and slum women</td>
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<td>• Role of women – as a mother, wife, in laws, grand mother</td>
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<tr>
<td><strong>Factors affecting status of women in family</strong></td>
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<tr>
<td>• Types of family</td>
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<td>• Religion</td>
<td></td>
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<td>• Marriage</td>
<td></td>
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<td>• Values</td>
<td></td>
<td></td>
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<tr>
<td>• Education</td>
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<tr>
<td>• Economic</td>
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<tr>
<th>Unit IV</th>
<th>History of technology development</th>
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<tbody>
<tr>
<td>Evolution of communication technology from smoke signals to satellites, from wall newspaper to information and communication technology (ICT), analog to digital mode of transmission and preservation etc.</td>
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<thead>
<tr>
<th>Unit V</th>
<th>Use of technology</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>Use of technology for individual, group and mass communication</td>
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<tr>
<td><strong>Individual</strong> – telephone, fax, internet, book etc</td>
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<tr>
<td><strong>Group</strong> – video, theatre, puppets, aids for groups communication like OPH, notice board etc.</td>
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<td><strong>Mass</strong> – radio, television, film, print media etc.</td>
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<tr>
<td>Impact of each technology on nature of communication.</td>
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**Practical based on paper 16 – Extension education**

1) Preparation of different educational aids. (02)

2) Demonstration on any topic (Subject) (02)

3) Make an album – picture of a Home Science area. (02)

4) A device for success –
   a) Pilot survey of women problem (02)
   b) Mudra
   c) Medication
   d) Tips of mental and emotional health

5) Role play in a group for the Home Science Extension activity. (02)
Distribution of Practical marks
- Viva - 05 Marks
- Internal - 10 Marks
- Records - 03 Marks
- Demonstration - 02 Marks
- Album - 02 Marks
- Education Material - 03 Marks

Total - 25 Marks

References:

1) J¥h{dkmZ àgma {ejm, H$_boe e_m©, _m`m d_m©, gm{hÊ` àH$meZ, AmJam
2) àgma {ejm, S>m°. eob ~§gb, {edm àH$meZ, lr JUoe _m H]$Q>, IOwar
- nOma, BYXmîja
3) àgma {ejm Ed§ J«m_rU {dh$mg, S>m°. O`nmb qgh Eg. E Z. E$.
+änHo$eZ, 35/633, ZmijdîVr bmohm.₨S>g, AmJam - 2.
4) gm_wXm(C{H$ {dh$mg Am{U {dîVma {ejU, àm. ~m~m {VJmao _hmamî>`
J«$W [Z[©Vr §S>g, {dÜm ~wŠg, Amja$Jnwam, Amja$Jm~mX
5) ^maV J$_ âgma {ejm, S>m°. (daoÝDhw$ _ma Xw~o, S>m°. gwl(~a qgh,
ha mUm gm(hÊ` AH$Xr MYXrJS>
6) {dîVma {ejm, S>m°. (ldoUr \$aH$S>o
7) An introduction to extension education – Dr. S. V. Supe
8) Extension education – Adive Reddy
10) Journalism in modern India – Riland Wolfsedt Asia Publishing House (1992)
   (1989)
   Communication, New Delhi.
14) Mc. Dowell S. D. (1977) : Globalisation and policy choice : Television and audio-
15) DECU (2000) : The Journey – 25 years of satellite broadcasting in India,
    Development and education communication unit, ISRO, Ahamedabad.
16) Reports and Papers in Mass Communication VNESCO, Government of India
    Delhi.
# Paper – 17 :- Basic Nutritional Biochemistry

<table>
<thead>
<tr>
<th>Theory - 4 lec/ week</th>
<th>Theory-100 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical – 2</td>
<td>Practical-25 marks</td>
</tr>
</tbody>
</table>

## Unit I Biochemistry
- Introduction, Definition, objectives, scope and inter relationship between Biochemistry and nutrition.
- Metabolism – Digestion & Absorption of different nutrients in the human system.

## Unit II Carbohydrates
- Structure & Function.
- Classification, Properties (physical & chemical)
- Metabolism of carbohydrates- Glycolysis, TCA cycle, glycogen metabolism, HMP shunt, ATP production.
- Altered energy metabolism in different conditions of overnutrition & undernutrition.

## Unit III Proteins
- Structure & Function.
- Classification
- Metabolism of proteins – Tranamination, deamination, oxidative decarboxylation, urea cycle.
- Changes in protein metabolism in different disease studies.

## Unit IV Fats
- Structure & Function.
- Classification of fatty acids & its significance in health and disease.
- Beta oxidation of fats.
- Ketone bodies & their significance.

## Unit V Enzymes & Hormones
- Definition, Nomenclature & classification.
- Mechanism of enzyme action.
- Factors affecting enzymes.
- Enzyme inhibition.
- Types & role of coenzymes.

Reference

10. Sundarraj, P and Siddu, A. (1965) : Qualitative and Quantitative procedures in biochemistry, wheeler publishing.

Practical based on subject 17) Basic Nutritional Biochemistry

1. Qualitative and Quantitative tests for carbohydrates, lipids, proteins, amino – acids and vitc. 2 x 3 hrs.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>2.</td>
<td>Estimation of ascorbic acid by titrimetric method</td>
</tr>
<tr>
<td>3.</td>
<td>Determination of starch, sugar, and analysis of proximate constituents of foods.</td>
</tr>
</tbody>
</table>
| 4. | Estimation of energy requirement  
  BMR  
  Energy Expenditure on physical activities. | 1 x 3 hrs. |
| 5. | Assessment of micronutrient status  
  Iron  
  Calculim | 1 x 3 hrs. |
| 6. | Estimation of Urea, Estimation of Creatinine | 1 x 3 hrs. |
| 7. | Enzymes – Effect of PH and temperature on enzyme activity.  
  Effect of salivary amylase on starch, Pepsis on proteins and lipase on fats. | 1 x 3 hrs. |
Paper No.18 : Introduction to Early Childhood Education

Theory - 4 lec/ week  Theory-100 marks
Practical – 2  Practical-25 marks

Objectives:
1. To become acquainted with essential requirements for planning & conducting a preschool programme.
2. To develop an understanding of programme planning for preschool children.
3. To create awareness of the importance of parents involvement.

<table>
<thead>
<tr>
<th>Unit I</th>
<th>Principals of early childhood Education.</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Importance, need &amp; scope, objectives.</td>
<td></td>
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<tr>
<td></td>
<td>• Types of preschool programmes.</td>
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</table>

<table>
<thead>
<tr>
<th>Unit II</th>
<th>Organization of Preschool</th>
<th>8</th>
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<tbody>
<tr>
<td></td>
<td>• Building, ground, equipments.</td>
<td></td>
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<tr>
<td></td>
<td>• Teacher- roles &amp; responsibilities.</td>
<td></td>
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<td></td>
<td>• Programme planning – longterm, short term, weekly, daily</td>
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<thead>
<tr>
<th>Unit III</th>
<th>Programme / Activities</th>
<th>12</th>
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<tbody>
<tr>
<td></td>
<td>• Play- importance, values, types.</td>
<td></td>
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<tr>
<td></td>
<td>• Creative play / activities – Painting, clay modeling, cutting &amp; pasting, block, water, sand.</td>
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<tr>
<td></td>
<td>• Language activities – story telling, song, dramatization, informal talk, picture talk.</td>
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<td></td>
<td>• Science - Goals, content &amp; method, recourses.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Social Studies - Goals, content &amp; method, recourses.</td>
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</tr>
<tr>
<td></td>
<td>• Mathematics- Objectives &amp; concepts.</td>
<td></td>
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<tr>
<td></td>
<td>• Readiness- Reading &amp; Writing.</td>
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<td></td>
<td>• Recourse unit.</td>
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<tr>
<th>Unit IV</th>
<th>Working with parents –</th>
<th>8</th>
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<tbody>
<tr>
<td></td>
<td>• Importance &amp; methods.</td>
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<tr>
<th>Unit V</th>
<th>Guidance –</th>
<th>8</th>
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</table>
• Handling feeling of insecurity & hostility.

Practical:
Objectives:
1. To prepare materials for promoting learning in preschool children
2. To provide opportunities for practical teaching experiences with the use of aids.

Content:
1. Observation and recording of early childhood program
   - Report writing.
2. Creative and craft activities
   - Drawing, painting, printing, fingerprinting, molding, threading and lacing, tearing, cutting, collage.
3. Language activities
   - Picture book
   - Story telling
   - Object talk
4. Science
   - List of activities
5. Mathematical kit on pre-mathematical concepts.
6. Music and movement
   - Collection of song.
7. Readiness activities
   - Matching sets, visual discrimination, work pages
8. Games
9. Participation in nursery/preschool with all activities.

Reference:
1. Leeper, Skipper - Good Schools for young children.
S.Y.B.Sc. (Home Science)

Format of the Question Paper

Time : Three Hours     Maximum Marks: 100

N.B. : 1) All questions are compulsory
       2) Figures to the right indicate full marks.
       3) Draw need diagram where ever necessary.

1) Attempt any ten (out of 13) of the following (one or two sentences each.) [20]

2) Attempt any five (out of 7) of the following (five or six sentences each.) [20]

3) Attempt any three (out of 5) of the following (25 to 30 sentences each.) [30]

4) Attempt any two (out of 3) of the following (50 to 60 sentences each.) [30]