2.1   COMMUNICATION SKILLS – II

L T P
3 - 2

RATIONALE

Interpersonal communication is a natural and necessary part of organizational life. Yet, communicating effectively can be challenging because of our inherent nature to assume, overreact to and misperceive what actually is happening. Poor communication or lack of communication is often cited as the cause of conflict and poor teamwork. In today's team-oriented workplace, managing communication and developing strategies for creating shared meaning are crucial to achieve results and create successful organizations. The goal of the Communicating Skills course is to produce civic-minded, competent communicators. To that end, students must demonstrate oral as well as written communication proficiency. These include organizational and interpersonal communication, public address and performance. The objectives of this subject are understanding how communication works, gaining active listening and responding skills, understanding the importance of body language, acquiring different strategies of reading texts and increasing confidence by providing opportunities for oral and written expressions

DETAILED CONTENTS

Section A

1.   Grammar and Usage   (15 Hrs)

1.1   Prepositions
1.2   Pronouns
1.3   Determiners
1.4   Conjunctions
1.5   Question and Question Tag
1.6   Tenses (Simple Present, Simple Past)

Section B

2.   Reading Skills   (15 Hrs)

        Unseen comprehension passages (at least 5 passages).

3.   Writing Skills   (18 Hrs)

3.1   Writing Notice
3.2   Writing Circular
3.3   Writing a Memo
3.4   Agenda for a Meeting
3.5   Minutes of the Meeting
3.6   Telephonic Messages

3.7   Paragraph writing:
        Simple and Current Topics should be covered.

LIST OF PRACTICALS

(Note: The following contents are only for practice. They should not be included in the final theory examination)

1.   Listening Comprehension

1.1   Locating Main Ideas in a Listening Excerpt
1.2   Note-taking

2.   Developing Oral Communication Skills

2.1   Offering-Responding to Offers
2.2   Requesting-Responding to Requests
2.3   Congratulating
2.4   Expressing Sympathy and Condolences
2.5   Expressing Disappointments
2.6   Asking Questions-Polite Responses
2.7   Apologizing, Forgiving
2.8   Complaining
2.9   Persuading
2.10   Warning
2.11   Asking for and Giving Information
2.12   Giving Instructions
2.13   Getting and Giving Permission
2.14   Asking For and Giving Opinions

INSTRUCTIONAL STRATEGY

Looking into the present day needs of effective communication in every field, it is imperative to develop necessary competencies in students by giving practical tips and emphasis on grammar, vocabulary and its usage in addition to practical exercises. The teacher should give report writing assignments, projects etc. while teaching this subject.

LIST OF RECOMMENDED BOOKS

1. Communicating Effectively in English, Book-I by Revathi Srinivas; Abhishek Publications, Chandigarh.
2. High School English Grammar and Composition by Wren & Martin; S. Chand & Company Ltd., Delhi.
3. Communication Techniques and Skills by R. K. Chadha; Dhanpat Rai Publications, New Delhi.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	15	30
2	15	35
3	18	35
Total	**48**	**100**

APPLIED MATHEMATICS - II

L T P
5 - -

RATIONALE

Applied Mathematics forms the backbone of engineering students. The curriculum of mathematics has undergone changes from time to time in accordance with growth of subject. Diploma in Engineering is a launching stage where the students learn the basics of engineering. The revised syllabus has been designed keeping in view the emerging needs of all categories of students. Great emphasis has been laid on application of various contents like differential calculus, integral calculus, differential equations and statistics. This course will develop analytical abilities to make exact calculations and provide continuing educational base to the students.

Note:- Teachers should give examples of engineering/technology applications of various concepts and principles in each topic so that students are able to appreciate learning of these concepts and principles.

DETAILED CONTENTS

1.   Differential Calculus   (30 hrs)

    1.1   Definition of function; Concept of limits.

Four standard limits $\underset{x \to a}{\text{Lt}} \dfrac{x^n - a^n}{x - a},$

$\underset{x \to 0}{\text{Lt}} \dfrac{\text{Sin } x}{x}$, $\underset{x \to 0}{\text{Lt}} \dfrac{a^x - 1}{x}$, $\underset{x \to 0}{\text{Lt}} (1+x)^{1/x}$

    1.2   Differentiation by definition of x^n, sin x, cos x, tan x, e^x, $\log_a x$ only
    1.3   Differentiation of sum, product and quotient of functions. Differentiation of function of a function.
    1.4   Differentiation of inverse trigonometrical functions, Logarithmic differentiation, Exponential differentiation, Successive differentiation (upto third order only).
    1.5   Applications:
        (a) Maxima and minima
        (b) Equation of tangent and normal to a curve (for explicit functions only) – Simple problems only

2.   Integral Calculus   (25 hrs)

    2.1   Integration as inverse operation of differentiation
    2.2   Simple standard integrals and related problems
    2.3   Simple integration by substitution, by parts and by partial fractions (for linear factors only)

2.4   Evaluation of definite integrals (simple problems)-

$$\int_0^{\pi/2} \mathrm{Sin}^n x \, dx, \quad \int_0^{\pi/2} \mathrm{Cos}^n x \, dx, \quad \int_0^{\pi/2} \mathrm{Sin}^m x \; \mathrm{Cos}^n x \, dx$$

using formulae without proof (m and n being positive integers only)

2.5   Numerical integration by Simpson's Rule and Trapezoidal Rule (simple   problems only)

3   Ordinary Differential Equations   (10 hrs)

   3.1. Definition, order, degree, linear and non-linear differential equations
   3.2   Formation of differential equations (upto second order)
   3.3. Solution of first order differential equations by variable separable method only

4.   Statistics   (15hrs)

   4.1   Measures of Central Tendency: Mean, Median, Mode
   4.2   Measures of Dispersion: Mean deviation, Standard deviation
   4.3   Co-efficient of rank correlation

INSTRUCTIONAL STATREGY

Basic elements of Differential Calculus, Integral Calculus, Ordinary Differential Equations and Statistics can be taught in the light of their applications in the field of engineering and technology. By laying more stress on applied part, teachers can also help in providing continuing education base to the students.

RECOMMENDED BOOKS

1.   Elementary Engineering Mathematics by BS Grewal; Khanna Publishers, New Delhi
2.   Engineering Mathematics by Vol. I & II by S Kohli; IPH, Jalandhar
3.   Applied Mathematics by Dr. RD Sharma; Dhanpat Rai Publications, Delhi
4.   Applied Mathematics, Vol. I & II by SS Sabharwal & Sunita Jain; Eagle Parkashan, Jalandhar
5.   Comprehensive Mathematics, Vol. I & II Laxmi Publications, Delhi.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	30	40
2	25	30
3	10	10
4	15	20
Total	**80**	**100**

2.3   APPLIED CHEMISTRY-II

L T P
3 - 2

RATIONALE

The role of chemistry in every branch of engineering and technology is expanding greatly. Now a days, various chemical products are playing important role in the field of engineering with increasing number of such products each successive years. The strength of materials, the chemical composition of substances, their behaviour when subjected to different treatment and environment, and the laws of heat and dynamic energy have entered in almost every activity of modern life. Chemistry is considered as one of the core subjects for diploma students in engineering and technology for developing in them scientific temper and appreciation of chemical properties of materials, which they have to handle in their professional career. Effort should be made to teach this subject through demonstrations/ minor projects and with the active involvement of students.

Note:- Teachers should give examples of engineering/technology applications of various concepts and principles in each topic so that students are able to appreciate learning of these concepts and principles.

DETAILED CONTENTS

1.   Metallurgy   (08 hrs)

    1.1   A brief introduction of the terms: Metallurgy (types), mineral, ore, gangue or matrix, flux, slag, concentration (methods of concentrating the ores), ore, roasting, calcinations, smelting and refining of metal.
    1.2   Metallurgy of (i) Aluminium (ii) Iron
    1.3   Definition of an alloy, purposes of alloying, composition, properties and uses of alloys, monel metal, magnalium, duralumin, alnico, stainless steel and invar.

2.   Fuels   (10 hrs)

    2.1   Definition of a 'Fuel', characteristics of a good fuel and classification of fuels with suitable examples
    2.2   Definition of Calorific value of a fuel and determination of calorific value of a solid fuel with the help of Bomb calorimeter. Simple numerical problems based upon Bomb-calorimeter method of finding the Calorific values
    2.3   Brief description of 'Proximate' and 'Ultimate' analysis of a coal. Importance of conducting the proximate and ultimate analysis of a fuel
    2.4   Merits of gaseous fuels over those of other varieties of fuels
    2.5   Manufacture, composition, properties and uses of (i) Water gas (ii) Oil gas (iii) Biogas
    2.6   Composition, calorific values and applications of (i) LPG (ii) CNG (iii) Power alcohol

2.7   Fuel rating
        2.7.1 Octane number for petrol
        2.7.2 Cetane number for diesel

3   Corrosion   (06 hrs)

3.1   Definition of corrosion
3.2   Theories of corrosion i.e. (i) direct chemical action theory and (ii) electro chemical theory
3.3   Passivity
3.4   Prevention of corrosion by
        3.4.1 Alloying
        3.4.2 Providing metallic coatings
        3.4.3 Cathodic protections:
                (a)   Sacrificial
                (b)   Impressed voltage method
        3.4.4 Heat treatment (quenching, annealing, tempering & normalizing)

4   Lubricants   (06 hrs)

4.1   Definition of (i) lubricant (ii) lubrication
4.2   Classification of lubricants
4.3   Principles of lubrication
        4.3.1 fluid film lubrication
        4.3.2 boundary lubrication
        4.3.3 extreme pressure lubrication
4.4   Properties of lubricants
        4.4.1 Physical properties: viscosity, viscosity index, flash-point, fire-point, cloud-pour point, oiliness, volatility, emulsification
        4.4.2 Chemical properties-Total acidity number (TAN) saponification and iodine value, coke number and aniline point.
4.5   Criterion for selection of a good lubricant

5   Glass   (04 hrs)

5.1   Glass: Chemical composition, types of glasses and their applications
5.2   Manufacture of ordinary glass and lead glass

6.   Classification and Nomenclature of Organic Compounds   (06 hrs)

Classification of Organic Compounds, functional group, Homogolus Series, IUPAC-Nomenclature of various homogolous series i.e. alcohols, aldehydes, ketones, carboxylic acids, and phenols. (First six members of each series only)

7.   Polymers & Plastics   (08 hrs)

       7.1   Definition of polymer, monomer & degree of polymerization
       7.2   Brief introduction of addition & condensation polymers with suitable examples (PVC, Polyester, Teflon, Nylon 66, Bakelite)
       7.3   Definition of plastic & type of plastics (thermo & thermo setting plastics) with suitable examples
       7.4   Applications of polymers & plastics in daily life.

LIST OF PRACTICALS

1.   Gravimetric analysis and study of apparatus used

2.   To determine the percentage composition of a mixture consisting of a volatile and a non-volatile substances

3.   Determine the viscosity of a given oil with the help of "Redwood viscometer"

4.   Determine the flash point of the given oil with the help of Abel's Flash Point Apparatus

5.   Estimate the amount of moisture in the given sample of coal

6.   Estimate the amount of ash in the given sample of coal

7.   Electroplate the given strip of Cu with Ni

8.   Confirmation test of alcohol, aldehydes, carboxylic acid

9.   To determination the total acidity number of a lubricant

10.   Detection of metal iron in the rust (solution of rust in concentrated HCl may be given)

11.   To study the effect of metal coupling on corrosion of metals

INSTRUCTIONAL STATREGY

Teacher may take help of various models and charts while imparting instructions to make the concepts clear. More emphasis may be laid on discussing and explaining practical applications of various chemical processes and reactions. In addition, students should be encouraged/motivated to study those processes in more details, which may find practical applications in their future professional life.

RECOMMENDED BOOKS

1.   Chemistry in Engineering by J.C. Kuriacose and J. Rajaram; Tata McGraw-Hill Publishing Company Limited, New Delhi
2.   Engineering Chemistry by Dr. S. Rabindra and Prof. B.K. Mishra ; Kumar and Kumar Publishers (P) Ltd. Bangalore-40
3.   A Text Book of Applied Chemistry-I by SS Kumar; Tata McGraw Hill, Delhi
4.   Progressive Applied Chemistry –I and II by Dr. G.H. Hugar; Eagle Prakashan, Jalandhar
5.   Engineering Chemistry by Jain PC and Jain M Dhanpatrai publishers. New Delhi

6.	Chemistry of Engineering by Aggarwal CV
7.	Chemistry for Environmental Engineers by Swayer and McCarty, McGraw Hill, Delhi
8.	A Text Book of Applied Chemistry-I by Sharma and Others; Technical Bureau of India, Jalandhar
9.	A Text Book of Applied Chemistry-II by Dr. J K Sharma (Hindi version), Abhishek Publications, Sec. 17-C, Chandigarh.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	08	16
2	10	20
3	06	14
4	06	14
5	04	08
6	06	12
7	08	16
Total	**48**	**100**

2.4 BASICS OF TEXTILE PROCESSES

L T P
5 - -

RATIONALE

This subject is introduced in the curriculum of diploma program to give an overview of various elements/systems of processes involved in the Textile Mills, so that students, before undertaking the detailed studies of spinning, weaving, processing and knitting are able to correlate these elements/systems.

DETAILED CONTENTS

1	Introduction to fibre, yarn, fabric (woven, knitted and non-woven fabrics)	(06 hrs)
2	Flow sheets of processes involved in converting fibre into yarn, yarn into grey fabrics, yarn into knitted fabrics and grey fabrics into finished fabrics.	(08 hrs)
3	Objects and introduction to processes involved in converting fibre into yarn.	(06 hrs)
4	Introduction to yarn numbering and yarn parameters	(06 hrs)
5	Introduction and objectives of different processes involved in the weaving preparation	(06 hrs)
6	Introduction to the processes involved for weaving (primary, secondary, and auxiliary notions) of loom	(08 hrs)
7	Introduction to the loom, different types of weaving loom	(06 hrs)
8	Introduction to knitting, different terminology of knitting, courses, whales, warp knitting, weft knitting loops. Properties of knitted fabrics, knitting stitches (Basic)	(10 hrs)
9	Introduction to non woven, difficult type of non-woven fabrics	(06 hrs)
10	Comparison of woven, knitted and non-woven fabrics with reference to their properties.	(08 hrs)

11   Objectives and elementary idea of different wet processes and steps   (10 hrs)
      used in converting grey fabric into finished fabric- designing,
      scouring, bleaching, mercerizing , dyeing, pointing and finishing.

INSTRUCTIONAL STRATEGY

Teachers should lay emphasis on clarifying the concepts and principles. Teachers should use various teaching aids to clarify the concepts and principles. The students may be exposed to different types of textile manufacturing processes through visit to textile mill so that they are able to understand the subject properly.

RECOMMEND BOOKS

1.   Textile Science by Gohl and Vilensky or EPS Gohl, CBS Publishers, Delhi

2.   Introduction to Textile by HH Willege

3   Introduction to textile processes by Yaswant Singh

4   Technology of Dyeing, Dr. V.A. Shenai, Sevak publications

5   Technology of Bleaching, Dr. V.A. Shenai, Sevak publications

6   Technology of Printing, Dr. V.A. Shenai, Sevak publications

7   Technology of Finishing, Dr. V.A. Shenai, Sevak publications

8   Textile Motivate Series Macmillan publications

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	06	08
2	08	10
3	06	08
4	06	08
5	06	08
6	08	10
7	06	06
8	10	12
9	06	08
10	08	10
11	10	12
Total	**80**	**100**

2.5   TEXTILE FIBRES

L T P
5 - 2

RATIONALE

The students after completion of their diploma have to work in Textile Mills/Houses/Quality Control Centres and have to supervise various units in the manufacture of textiles for which knowledge of textile fibres is essential. Hence this subject is required for primary and elementary knowledge of the textile fibers.

DETAILED CONTENTS

Theory

1   Introduction and General Concept of Textiles   (12 hrs)

1.1. Definition of Textile fibres, filaments
1.2. Classification of Textile fibres according to their nature and origin
1.3. General properties of Textile fibres

2   Natural fibres – Cotton, Wool, Silk and Jutes   (22 hrs)

2.1. Origin and nature
2.2. Microscopic appearance
2.3 Impurities present in the fibre
2.4. Physical and chemical properties of cotton and their uses

3   Other Vegetable fibres   (06 hrs)

3.1. Origin of coir, hemp and ramie
3.2. Uses of coir, hemp and ramie

4   Regenerated fibres   (10 hrs)

4.1. Manufacturing processes of viscose rayon and acetate rayon
4.2. Physical and chemical properties of viscose and acetate rayon
4.3. Uses of viscose and acetate rayon

5   Synthetic fibres   (30 hrs)

5.1. Manufacturing processes of polyester (polyamide nylons 6, nylon 66)
5.2. Physical and chemical properties of polyester, Nylon 6, Nylon 66, and acrylic fibre
5.3 Uses of Polyester, Nylon 6, Nylon 66 and acrylic fibre.

LIST OF PRACTICALS

1.	Physical identification of natural fibres (cotton, wool , silk,)

2.	Physical identification of manmade fibres. (viscose rayon, polyester, nylon and acrylic)

3.	Chemical identification of natural fibres (cotton, wool, silk, jute)

4.	Chemical identification of manmade fibres. (viscose rayon, polyester, nylon, acrylic).

INSTRUCTIONAL STRATEGY

Teachers should lay emphasis on clarifying the concepts and principles. Teachers may use various teaching aids to clarify the concepts and principles. The students may be exposed to different types of textile manufacturing processes through visit to textile mill so that they are able to understand the subject properly.

RECOMMEND BOOKS

1.	Textile Raw Materials by Jindal & Jindal, Abhishek Publication, Chandigarh

2.	Textile Science by Gohl and Vilensky or EPS Gohl, CBS Publiser

3.	Textile Fibres by Atira, Atira Publicatiion

4.	Fibre Science by JM Preston

5.	Fibre Science by Gopalakrishnan , DKTE Ichalkranji Society.

6.	Textile Fibres by V.A. Shenai, Sevak publication.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	12	16
2	22	26
3	06	10
4	10	14
5	30	34
Total	**80**	**100**

2.6   BASICS OF DESIGN AND COLOUR

L T P
3 - 6

RATIONALE

In this subject, students are given an understanding of various elements and concepts of colour and designing which develop their competency to create ideas for designing and enriching their aesthetic and colour sense according to market point of view.

The colour & design work will be displayed on display boards & be changed every 15/30 days.

NOTE:

Design, colour & Computer Aided Textile Design (CATD) should be dealt simultaneously, starting with design for 2-3 weeks & then all the three components/parts (design, colour & CATD) should by practiced together.

DETAILED CONTENTS

Sr. No.	Theory	Practical
	Part-I : Design (20 hrs)	
1.	Element of line, colour, texture, shape, space, design; Principles of design-rhythm, balance, harmony, emphasis, proportion, colour combination to form a good composition.	Teachers will illustrate and discuss the basic concept of drawing and designing with the help of replicas pictures, paintings, designs, etc., which help the students to create suitable and good designs.
2.	Study of objects in nature like leaves, flowers, vegetables, fruits, animals, birds etc.	Students will practice the following topics on separate drawing sheets by observing them in nature or by taking references from various books, charts, pictures,etc. At least one sheet of each topic will be prepared by students in pencil drawing. - Sketching of different type of leaves - Sketching of different types of flowers. - Sketching of different types of vegetables - Sketching of different types of fruits - Sketching of different types of animals - Sketching of different types of birds
3.	Unit and Repeat of design	Students will learn to select unit or repeat from various samples

4.	Understanding various styles of designs - Natural (realistic) - Conventional (Oriental) - Geometrical - Abstract - Traditional - Folk - Symbolic - Contemporary	Student will make at least three motifs based on each different style by using various colour schemes
5.	Change of one style of design to another	Students will practice to change natural forms into conventional, geometrical and abstract forms
6.	Construction and arrangement of designs on various basis - Drop base - Half drop base - Drop reverse base - Sateen base	Students will do practice on construction of designs on various basis
7.	Enlargement and reduction of designs	Students will practice to make various designs into enlarged and reduced sizes
	Part-II : Colour **(16 hrs)**	
1.	Light and colour phenomena and the physical basis of colour	Teacher will illustrate the basic concepts of Colour theory with the help of diagrams, charts, pictures etc
2.	Introduction of 'Colour Vision Theory' and 'Pigment Theory'	Teacher will discuss the basic concepts of both the theories with the help of diagrams and charts
3.	Classification of Colours	Students will prepare a chart of classification of colours using poster colours on drawing sheet
4.	Chromatic Circle	Students will prepare a chart of chromatic circle on drawing sheet by using poster colours
5.	Colour measurement	Teacher will discuss with students various elements of colour measurement
6.	Attributes of primary and secondary colours	Teacher will discuss various attributes of primary and secondary colours with students

7.	Methods of modification of colours	Students will practice to produce various hues, tints, tones, shades, broken-hues by mixing various colours in various ratio
8.	Prints and Shades	Students will learn the concepts of cool colours, warm colours, analogous and contrasting colours, complementary colours, adanvcing and receding colours through different practices.
9.	Colour in combination - COLOUR HARMONIES: - Monochromatic, polychromatic and Achromatic colour schemes - Analogous and Contrast colour schemes - Complementary colour scheme - Split complementary colour scheme - Double split complementary colour scheme - Cool & warm colour scheme	Students will practice these different colour schemes while preparing the various motifs of designs under topic 3 to 7 of Part-I (Design)
10.	Effect of texture, tie and die schemes	Students will practice to make some samples of designs in different colour ways
11	Application of various textures, lines and shapes for creation of design	Students will practice to create designs using various lines, textures and shapes.

PART-III (CATD) Computer Aided Textile Designing. (12 hrs)

The teachers will demonstrate the use of different softwares mainly Paint, Coral Draw & Adobe Photoshop-their tools and usage etc.

1.	Utility of software like 'paint' to do free-hand drawing	Students will learn to do free hand drawing with computer
2.	Introduction to computers compared to using of different tools in layering of design (Coral Draw)	Students should be taught how to use different tools & designing in layers using Coral
3.	Use of symbol transferring with the help of tools (Coral Draw)	After the students have learnt the use of tools, they should use the symbols to transform them,using the tools, and make designs from Part-I (Design) The specific designs made should be filled with colour & texture taking advantage of layering techniques.

4.	Capturing a picture/design in computer using scanner, editing and stylization.	Students will learn to do scanning of their hand-made designs, editing, stylization and change of colour-schemes, etc. (using Adobe Photo Shop)

INSTRUCTIONAL STRATEGY

Students should be taken for field visits (like museums, exhibitions, emporiums etc.) for clarifying the concepts and principles of this course as per requirement. The knowledge attained by students during practical exercises will be evaluated in the form of viva-voce during practical examinations

RECOMMENDED BOOKS

1. Colour Harmony (A guide to creative colour combination) by Hideaki Chijiiiwa.
2. Designer's Guide to Colour-II by Jeanne Allen
3. Designer's Guide to Colour-III by Jeanne Allen
4. Designer's Guide to Colour-IV by Shibukawa and Takahashi
5. Designer's Guide to Colour-V by Shibukawa and Takahashi
6. An introduction to Colour by Ralph M Evans
7. Patterns (Designer's Guide to Japanese by Jeanne Allen
8. Traditional Indian Motifs by K Parkash; Bombay Publication
9. Textile Designs (Idea and Applications) by Jokel Sokolov; Hearts Book International, 1350, Avenue of the Americas, New York, NY 10019
10. Anupam Nature Drawing by KV Kamble: JS Gala, Gala Publishers Ahmedabad 380021
11. Anupam Freehand Drawing by KV Kamble; J.S. Gala, J S Gala Publishers Ahmedabad 380021
12. Anupam Design Drawing by KV Kamble; JS Gala, Gala Publishers, Ahmedabad 380021
13. Alankar Series Vol.1,2,3,4,5,11 by Chamankiran; Kala Bhawan, Chaman School of Art, Zeemkhana, Ground, Meerut
14. Alankar (Textile Design) by Chamankiran; Kala Bhawan, Chaman School of Art, Zeemkhana, Ground, Meerut
15. Dhawan's Art Bool Vol.1,3,4,5 by Avtar Dhwan; Tip Top Trading Company, RK Dhawan;s Building Sangala Shivala Raod, Ludhiana
16. Costumes and Textile Designs of India, by Paul Bhatnagar; Abhishak Publication Chandigarh.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	20	45
2	16	32
3	12	23
Total	**48**	**100**