

# **SWAMI VIVEKANAND UNIVERSITY, SIRONJA, SAGAR (M.P.)**



## **SYLLABUS**

**For**

**Bachelor of Computer Application (B.C.A.)  
Course Code : BCA**

Department of Computer Science & Application  
Faculty of Computer Science & Application

Duration of Course : 3 Year
Examination Mode : Semester
Examination System : Non-Grading

Swami Vivekanand University, Sironja Sagar (M.P.)

2014-2015



**Fundamentals of Computers & Information Technology  
(BCA-0101)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0101	Fundamentals of Computers & Information Technology	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks :15**

Brief History of Development of Computers, Computer System Concepts, Computer System Characteristics, Capabilities and Limitations, Types of Computers, Basic Components of a Computer System - Control Unit, ALU, Input/output Functions and Characteristics, Memory RAM, ROM, EPROM,PROM and other types of Memory.

**UNIT- II**

**Marks :15**

Input/ Output & Storage Units - Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Barcode Reader, Voice Recognition, Light pen, Touch Screen, Monitors - Characteristics and types of monitor , Size, Resolution, Refresh, Dot Pitch, Video Standard - VGA, SVGA,XGA.

**UNIT- III**

**Marks :15**

Printers and its Types - Dot Matrix, Inkjet, Laser, Plotter, Sound Card and Speakers, Storage Fundamentals - Primary Vs Secondary data Storage, Various Storage Devices - Hard Disk Drives, Floppy Disks ,Optical Disks, Flash Drives.

**UNIT- IV**

**Marks : 15**

Use of Communication and IT, Communication Process, Communication Types-Simplex, Half Duplex, Full Duplex, Serial and Parallel Communication, Types of Network - LAN, WAN, MAN , Internet, Topologies of LAN - Ring, Bus, Star, Mesh and Tree Topologies, World Wide Web and its Applications and Internet Services.

## **UNIT- V**

**Marks : 15**

Software and its Need, Types of Software - System Software, Application Software, System Software - Operating System, Utility Program, Programming Languages, Assemblers, Compilers and Interpreter, Programming Languages- Machine, Assembly, High Level, 4GL.

### **Reference Books**

MULTIMEDIA: MAKING IT WORK (4TH EDITION) BY THYVAUGHAN, TATA MCGRAW HILLS.

MULTIMEDIA IN ACTION JAMES E SHUMAN VIKAS PUBLISHING HOUSE.

MULTIMEDIA BASICS VOLUME / TECHNOLOGY, ANDREAS HOIZINGER, FIREWALL MEDIA (LAXMI PUBLICATIONS PVT. LID) NEW DELHI.



**Programming Methodology and C Programming  
(BCA-0102)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0102	Programming Methodology and C Programming	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Program Concept, Characteristics of Programming, Various Stages in Program Development, Algorithms, Flow Charts, Programming Techniques – Top Down, Bottom Up, Modular, Structured, Features, Merits, Demerits and Their Comparative Study. Programming Logic - Simple, Branching, Looping, Recursion, Programming Testing & Debugging. Operating system Services, System Calls, programs, System structure.

**UNIT- II**

**Marks : 15**

Introduction to C Language, C Language Standards, Features of C, Structure of C Program, Introduction to C Compilers, Creating and Compiling C Programs, IDE, Features of Turbo C Compiler. Keywords, Identifiers, Variables, Constants, Scope and Life of Variables, Local and Global Variable, Data Types, Expressions. Operators - Arithmetic, Logical, Relational, Conditional and Bit Wise Operators, Precedence and Associativity of Operators, Type Conversion. Basic Input/Output Library Functions ,Character Input/Output getch(), getchar(). getche(), putchar(). Formatted Input/Output - printf() and scanf(), Mathematical & Character Functions Scheduling Criteria, Scheduling Algorithms, MultipleProcessor Scheduling Real- Time Scheduling, Threads,

**UNIT- III**

**Marks :15**

Declaration Statement, Conditional Statement - if Statement, if else Statement, Nesting of if... .else Statement, else if Ladder, The ?: Operator, switch Statement. Iteration Statements - for Loop, while Loop, do-while Loop. Jump Statements: break, continue, goto, exit(). Arrays - Concept of Single and Multi Dimensional Arrays Strings : Declaration, Initialization, Functions Deadlock Characterizations, Method for Handling, Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock .

## **UNIT- IV**

**Marks : 15**

The Need of C Functions, User Defined and Library Function, Prototype of Functions, Prototype of main() Function, Calling of Functions, Function Arguments, Argument Passing: Call By Value and Call By Reference, Return Values. Nesting of Function, Recursion, Array as Function Argument, Command Line Arguments, Storage Class Specifier - Auto, Extern, Static, Register. Segmentation, Virtual Memory, Demand Paging, Page Replacement, Page Replacement Algorithms,

## **UNIT- V**

**Marks : 15**

Defining Structure, Declaration of Structure Variable, Type def, Accessing Structure Members, Nested Structures, Array of Structure, Structure Assignment, Structure as Function Argument, Function that Return Structure, Union. Stable Storage Implementation. File Concepts Directory structure, Protection, File system in Linux.

## **Reference Books**

- BALAGURUSWAMY, "PROGRAMMING IN C ", TMH PUBLICATIONS
- GOTTFRIED SCHAUMS OUTLINE SERIES, "PROGRAMMING WITH C ",
- TMH PUBLICATIONS
- MAHAPATRA, " THINKING IN C ", (PHI) PUBLICATIONS



**PC Packages (Word, Excel and PowerPoint)  
(BCA-0103)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0103	PC Packages (Word, Excel and PowerPoint)	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

MS Windows: Introduction to MS Windows, Features of Windows, Various versions of Windows & its use, Working with Windows, My Computer & Recycle bin , Desktop, Icons and Windows Explorer, Screen description & working styles of Windows, Dialog Boxes & Toolbars, Working with Files & Folders, Operations on Files and Folders, Shortcuts & Auto starts, Accessories and Windows Settings, Using Control Panel- Setting common devices using control panel, creating users, internet settings, Start button & Program lists, Installing and Uninstalling new Hardware & Software program on your computer.

**UNIT- II**

**Marks : 15**

Office Packages: Office activates and their software requirements, Word processing, Spreadsheet, Presentation graphics, Database, introduction and comparison of various office suites like MS-Office, Lotus-Office, Star-Office, Open-Office, MS Word Basics- Features & area of use. Working with MS Word, Menus & Commans, Toolbars & Buttons, Shortcut Menus, Wizards & Templates, Creating a New Document, Different Page Views and layouts, Applying various Text Enhancements, Working with Styles, Text Attributes, Paragraph and Page Formatting, Text Editing using various features , Bullets, Numbering, Auto formatting, Printing & various print options.

**UNIT- III**

**Marks :15**

Advanced Features of MS Word, Spell Check, Thesaurus, Find & Replace; Headers & Footers, Inserting Page Numbers, Pictures, Files, Auto texts, Symbols, Working with Columns, Tabs & Indents, Creation & Working with Tables including conversion to and from text, Margins & Space management in Document, Adding References and Graphics, Mail Merge, Envelops & Mailing Labels. Importing and exporting to and from various formats.

## **UNIT- IV**

**Marks : 15**

MS Excel - Introduction and area of use, Working with MS Excel, concepts of Workbook & Worksheets, Using Wizards, Various Data Types, Using different features with Data, Cell and Texts, Inserting, Removing & Resizing of Columns& Rows, Working with Data & Ranges, Different Views of Worksheets, Column Freezing, Labels, Hiding, Splitting etc., Using different features with Data and Text; Use of Formulas, Calculations & Functions, Cell Formatting including Borders & Shading, Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

## **UNIT- V**

**Marks : 15**

MS PowerPoint - Introduction & area of use, Working with MS PowerPoint, Creating a New Presentation, Working with Presentation, Using Wizards, Slides& it's different views, Inserting, Deleting and Copying of Slides, Working with Notes, Handouts, Columns & Lists, Adding Graphics, Sounds and Movies to a Slide, Working with PowerPoint Objects, Designing & Presentation of a Slide Show, Printing Presentations, Notes, Handouts with print options. Outlook Express, Features and uses, Configuration and using Outlook Express for accessing e-mails in office.

### **Reference Books**

WINDOWS XP COMPLETE REFERENCE. BPB PUBLICATIONS

- MS OFFICE XP COMPLETE BPB PUBLICATION
- MS WINDOWS XP HOME EDITION COMPLETE, BPB PUBLICATION.
- JOE HABRAKEN, MICROSOFT OFFICE 2000, 8 IN 1, BY, PRENTICE HALL OF INDIA
- I.T TOOLS AND APPLICATIONS, BY A. MANSOOR, PRAGYA PUBLICATIONS, MATURA



**Social Science-I (BCA-0104)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0104	Social Science-I	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Concept, Definitions and Importance Of Sociology, Relation of Sociology with Other Social Sciences, Group-Community-Institution-Organisation-Society-Humanity-Biosphere and Their Unity and Inter-Dependence, Meaning of Family, Kinship, Class, Caste, Clan, Tribe, Marriage.

**UNIT- II**

**Marks : 15**

Concept of Socialization, Social Stratification, Concept, Definitions and Process of Social Change, Understanding of Contemporary Changes in India ,Characteristics of Indian Culture.

**UNIT- III**

**Marks : 15**

Concept, Definitions and Importance of Psychology, Relation of Psychology with Other Social Sciences, Psychology of Social Groups , Elements and Process of Human Behavior, Theory of Information Opinion and Attitude Formation.

**UNIT- IV**

**Marks : 15**

Environmental Study, Renewable And Non-Renewable Resources Natural Resources And Associated Problems:

- (a) Forest Resources: Use and over-exploitation, Deforestation, Timber extraction, mining, Dams and their effects on forests and tribal people.
- (b) Water Resources: Use and over-utilization of surface and ground water, floods, Drought, dams benefits and problems.
- (c) Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.
- (d) Food Resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
- (e) Energy Resources: Growing energy needs, Renewable and non-renewable energy sources, Use of alternate energy sources.
- (f) Land Resources: Land as a resource, land degradation, Man induced landslides, Soil erosion and Desertification.



## **UNIT- V**

**Marks : 15**

Environmental Study –ole R of an Individual in Conservation of Natural Resources. Environmental Pollution – Definition, a uses, C Effects And Control Measures of : Air Pollution ,Water Pollution , Soil Pollution , Marine Pollution, Noise Pollution ,Thermal Pollution ,Nuclear Pollution, leRo of An Individual in Prevention of Pollution Public Awareness, Environment and Human Health.

### **Reference Books**

- A TEXT BOOK OF ENVIRONMENTAL SCIENCE BY ARVIND KUMAR, APH PUBLISHING CORPORATION
- A TEXT BOOK OF ENVIRONMENTAL STUDIES BY DR B K SHARMA , HIMALAY
- FUNDAMENTALS OF SOCIOLOGY BY RAJENDRA KUMAR SHARMA, ISBN : 9788171566457



**Communicative English-I (BCA-0105)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0105	Communicative English-I	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Sentences : Simple, Compound, Complex, Assertive, Interrogative, Imperative, Exclamatory. Clauses : Coordinate, Sub-ordinate, Relative, Adverb, Comparative (Adverb + Adjective) Articles : usage of 'A', 'An', 'THE' Preposition : Position of Prepositions, Place Relations Time Relations and other relations.

**UNIT- II**

**Marks : 15**

Functional Grammar Tenses : Simple Present, Progressive Perfect, Present Perfect Progressive along with Past Tense and indications of futurity. Reported speech Modals : Will, Shall Should, Would and others Voice : Active and Passive

**UNIT- III**

**Marks : 15**

Reading & Writing, Comprehension of unseen passage and grasp of general language skills and issues with reference words & usage within passages.

**UNIT- IV**

**Marks : 15**

Paragraph writing, expansion of given ideas B Listening Note taking/Note making.

**UNIT- V**

**Marks : 15**

Vocabulary : making sentences with idioms & phrases Words Commonly Misspelled/confused Words formation by prefix suffix.

**Reference Books**

- 1 A PRACTICAL ENGLISH GRAMMAR BY THOMSON AND MARTINET ENGLISH GRAMMAR BY W. S. ALLEN
- 3 INTERMEDIATE ENGLISH GRAMMAR BY RAYMOND WILLIAMS 4 VOCABULARY BY
- 4 MICHAEL MC CARTHU AND FELICITY
- 5 O'DELL ENGLISH GRAMMER BY JA YANTHI DAKSHINA MURTH



Computer Lab-I (BCA102, BCA103)  
(BCA-0106)

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0106	Computer Lab-I (BCA102, BCA103)	-	-	4	4	-	-	-	-	100	33	-	100	100	-

**List of Experiments :**

1. W.A.P to determine whether input number is ODD or Even. Display appropriate message
2. W.A.P that will display grad of student according to his/ her marks using if else ladder
3. W.A.P that computes and prints the Factorial of a given number
4. W.A.P that computes and prints the Fibonacci series
5. W.A.P to print the different patterns
6. W.A.P to count Blanks, Tabs and Newlines using while and getchar
7. W.A.P for a calculator using do while
8. W.A.P to check whether the input number is prime or not
9. W.A.P to display even numbers between 2 to 20 without using the modulo operation.
10. Study and practice of Internal & External DOS commands.
11. Study and practice of Basic linux Commands – ls, cp, mv, rm, chmod, kill, ps etc.
12. Study and Practice of MS windows – Folder related operations, My-Computer, window explorer,
13. Creation and editing of Text files using MS- word.
14. Creation and operating of spreadsheet using MS-Excel.
15. Creation and editing power-point slides using MS- power point
16. Creation and manipulation of database table using SQL in MS-Access.



**Digital Electronics (BCA-0201)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0201	Digital Electronics	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Data representation Data Types and Number Systems, Binary Number System, Octal & Hexa-Decimal Number System, Fixed Point Representation, 1 's & 2's Complement, Binary Fixed – Point Representation, Arithmetic Operation on Binary Numbers, Overflow & Underflow, Floating Point Representation, Codes, ASCII, EBCDIC Codes, Gray Code, Excess-3 & BCD, Error Detection & Correcting Codes Binary Storage and Registers

**UNIT- II**

**Marks : 15**

Boolean algebra and digital logic circuits -Logic Gates, AND, OR, NOT Gates and their Truth Tables, NOR, NAND & XOR Gates, Boolean Algebra, Basic Definition and Properties, Basic Boolean Law's, Demorgan's Theorem, Minimization Techniques, K Map – Two, Three and More variables maps, Sum of Product & Product of Sums, Don't care conditions.

**UNIT- III**

**Marks :15**

Combination Circuits - Half adder & Full adder, Full subtractor, Full subtractor and decimal adder, Code Conversion, Multilevel NAND and NOR Circuits, Decimal adder, decoders, Multiplexers and Demultiplexers, ROM, PLA.

**UNIT- IV**

**Marks : 15**

Sequential logic- Flip-Flops - RS, D, JK & T Flip-Flop, Triggering in flip flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment, flip flop excitation tables, Design procedure and design of counters. Design with equations.

**UNIT- V****Marks : 15**

Registers, Counters and the memory unit, Shift registers, Ripple counters and Synchronous counters, Inter-register Transfer, Arithmetic Logic and Shift Micro Operation, Conditional Control Statement, Instruction Codes, Processor organization, design of a simple computer.

**Reference Books**

1. DIGITAL LOGIC AND COMPUTER DESIGN BY MORRIS MANO
2. COMPUTER SYSTEM ARCHITECTURE BY MORRIS MANO



Database Management System (BCA-0202)

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i=d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0202	Database Management System	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Introduction to database systems Purpose of Database system, View of data, characteristics of Database approach, Architecture for a Database System, Advantages and Disadvantages of DBMS, Database Users and Administrator, Database design and ER model Data Model Classification.

**UNIT- II**

**Marks : 15**

Structure of relational database, database schema, key, relational operations, formal relational query languages.

**UNIT- III**

**Marks :15**

Features of good Database design, Universal Relation, Anomalies in a Database, Atomic Domain and 1NF, Functional Dependency Theory, Decomposition Using Functional Dependency, Algorithm For Decomposition, Decomposition Using Multi value Dependency More Normal Forms, Database Design Process.

**UNIT- IV**

**Marks : 15**

Basic Concepts of Indexing and Hashing , Query Processing , Measures of Query cost , Query processing for select, Sort Join operations. Basics of Query optimization, Transformation of Relational expression, Estimating Statistics of Expression, Choice of evaluation plan.

**UNIT- V**

**Marks : 15**

Transaction Concepts, Features of database transaction, Concurrency control in database Lock base, Time stamp base, validation base Protocols, Database Recovery system.

**Reference Books**

- 1 SILBERSCHA TZ KORTH AND SUDARS HAN- DATABASE SYSTEM CONCEPTS, 6 THED. TATA MC-GRA W HILL.
- 2 RAGHU RAMA KRISH NA N-DATABASE MANAGEME NT SYSTEMS, 2NDED. TATA MCGRAW HILL
- 3 RAJESH NARANG – DATABASE MA NAGEMENT SYSTEM,2ND ED.PHI
- 4 R. ELMASRI ET. AL “FUNDAME NTALS OF DATABASE SYSTEMS”. 3 RD EDITION – ADDISON WESLEY, (INDIAN REPRINT), NE W DELHI. C.J.DATE, DATA BASE SYSTEMS, VOL I & II



**Advanced Programming in C  
(BCA-0203)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0203	Advanced Programming in C	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Overview of C, Features of C, IDE of C, Structure of C Program, Compilation & Execution of C Program., Identifiers, Variables, Expression, Keywords, Data Types, Constants, Scope and Life of Variables - Local and Global Variable, Operators: Arithmetic, Logical, Relational, Conditional and Bitwise Operators, Precedence and Associativity of Operators, Type Conversion in Expression, Basic Input /Output And Library Functions Single Character Input /Output i.e. getch(), getchar(), getche(), putchar(), Formatted Input/ Output i.e. printf() and scanf(), Library Functions – Concepts, Mathematical and Character Functions, Control Structures - if Statement, if.....else Statement, Nesting of if .....else statement, else if ladder, ?: Operator, switch Statement, Compound Statement Loop Controls – for, while, do-while Loops, break, continue, exit, goto Statement.

**UNIT- II**

**Marks : 15**

The Need of a Function, User Defined and Library Function, Prototype of a Function, Calling of a Function, Function Argument, Passing Arguments to Function, Return Values, Nesting Function, main(), Command Line Argument, Recursion.

**UNIT- III**

**Marks :15**

Arrays - Single and Multidimensional Arrays, Array Declaration and Initialization of Arrays, Array as Function Arguments, String : Declaration, Initialization, String Functions, Structure – Defining Structure, Declaration of Structure Variable, Accessing Structure Members, Nested Structures, Array of Structures, Structure Assignment, Structure as Function Argument, Function That Return Structure, Union.

**UNIT- IV**

**Marks : 15**

Pointers- The & and \* Operators, Pointers Expressions, Pointers v/s Arrays, Pointer to Functions, Static and Dynamic Memory Allocation in C, DMA Functions: malloc(), calloc(), sizeof(), free(), realloc().

**UNIT- V**

**Marks : 15**

File Management - Defining, Opening a File & Closing a File, Text File, Binary File, Functions for File Handling: fopen, fclose,getc, fgetc,putc, fputc, getw, putw, gets, puts, fgets, fputs, fprintf, fscanf, fread, fwrite, Random Access to Files : fseek, ftell, rewind, File Name as Command Line Argument.

## **Reference Books**

- 1 Programming in C By E. Balaguruswami, Tmh Publications
- 2 Programming with C By Gottfried, Schaums Outline Series, Tmh Publications
- 3 Thinking in C By Mahapatra, Phi Publications
- 4 Graphics Programming in C By Stevens, Bpb Publication
- 5 Programming in C By R Subburaj, Vikas Publishing





**Desk Top Publishing & Designing  
(BCA-0204)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0204	Desk Top Publishing & Designing	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

D.T.P For Publications: Introductions to Printing, Types of Printing, Offset Printing, Working of offset Printing, Transparent Printout, Negative & Positives for Plate were making, Use of Desk Top Publishing in Publications, Importance of D.T.P in Publication, Advantage of D.T.P in Publication, Mixing of graphics & Image in a single page production, Laser printers - Use, Types, Advantage of lager printer in publication.

**UNIT- II**

**Marks : 15**

Page Layout: Different page format / Layouts, News paper page format, Page orientations, Columns & Gutters, Printing in reduced sizes. Introductions To Page Maker :Page Maker Icon and help, Tool Box, Styles, Menus etc., Different screen Views, Importing text/Pictures, Auto Flow, Columns, Master Pages and Stories, Story Editor, Menu Commands and short-cut commands, Spell check, Find & Replace, Import Export etc., Fonts, Points Sizes, Spacing etc., Installing Printers, Scaling (Percentages), Printer setup.

**UNIT- III**

**Marks : 15**

Use of D.T.P, Use of D.T.P. in Advertisements, Books & Magazines, News Paper, Table Editor.

**UNIT- IV**

**Marks : 15**

Introduction to Adobe Photoshop & Documents ,Various Graphic Files and Extensions Vector Image and Raster Images, Various Colour Modes and Models.

**UNIT- V**

**Marks : 15**

Introduction to Screen and Work Area, Photoshop Tools & Palettes ,Use of Layers & Filters Working with Images.

**Reference Books**

1 PAGE MAKER 4.0 & 5.0 BY B.P.O. PUBLICATIONS.

2 PRAKHAR COMPLETE COURSE FOR DTP (CORELDRAW,PAGEMAKER, PHOTOSHOP



Communicative Hindi  
(BCA-0205)

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0205	Communicative Hindi	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

हिन्दी भाषा का संक्षिप्त विकास, हिन्दी के लिपि एवं बोलियों का संक्षिप्त परिचय, शब्दकोश - उपयोग एवं महत्व , हिन्दी व्याकरण, शब्द रचना, वाक्य रचना, वाक्यों के प्रकार, उपवाक्य संधिसमास, उपसर्ग, प्रत्यय, पर्यायवाची विलोमार्थी अनेकार्थक, समूहार्थक शब्द ।

**UNIT- II**

**Marks : 15**

देवनागरी लिपि के मुख्य विशेषताएँ वर्तनी, शब्द शुद्धि एवं वाक्य शुद्धि के नियम, प्रमुख मुहावरों एवं लोकोक्तियों का प्रयोग, छंद एवं अलंकारों का उपयोग, विराम चिन्हों का उपयोग।

**UNIT- III**

**Marks :15**

गद्य को विभिन्न शैलियों, साहित्य एवं समाचार पत्रों की भाषा शैली, वर्ण विभाग, स्वर व्यंजन। शब्द विभाग :- संज्ञा, सर्वनाम, विश्लेषण क्रिया, संबंध बोधक समुच्चय बोधक,विस्मययि बोधक। वाक्य विभाग :- उद्देश्य और विधेय, काल और काल अभेद पुरुष, वचन, लिंग ।

**UNIT- IV**

**Marks : 15**

अनुवाद का अर्थ और परिभाषा, अनुवाद के प्रकार, अनुवाद के उपकरण एवं समस्या, भाव तथाप्रभाव के आधार पर अनुवाद एवं लेख।

**UNIT- V**

**Marks : 15**

निबंध लेखन, रिपोर्ट लेखन, पत्र लेखन, अनुवाद, गोदान ,गवन, मुंशीप्रेमचंद।

## Reference Books

- 1 अनुवाद विकास एवं संपेषण :- डॉ. हरिमोहन
- 2 व्यवहारिक हिन्दी :- डॉ. माखेन्द्र पाठक
- 3 अनुवाद कला सिद्धांत और प्रयोग :- डॉ. कैलाश भाटिया
- 4 परिष्कृत हिन्दी व्याकरण :- बदरीनाथ



Computer Lab-I (BCA203, BCA204)  
(BCA-0206)

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0206	Computer Lab-I (BCA203, BCA204)	-	-	4	4	-	-	-	-	100	33	-	100	100	-

**List of Experiments**

1. W.A.P to determine whether input number is ODD or Even. Display appropriate message
2. W.A.P that will display grad of student according to his/ her marks using if else ladder
3. W.A.P that computes and prints the Factorial of a given number
4. W.A.P that computes and prints the Fibonacci series
5. W.A.P to print the different patterns
6. W.A.P to count Blanks, Tabs and Newlines using while and getchar
7. W.A.P for a calculator using do while
8. W.A.P to check whether the input number is prime or not
9. W.A.P to display even numbers between 2 to 20 without using the modulo operation



**Data Structures  
(BCA-0301)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0301	Data Structures	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Introduction: Basic Terminology, Data types and its classification, Algorithm complexity notations like big Oh. Array Definition, Representation and Analysis of Arrays, Single and Multidimensional Arrays, Address calculation, Array as Parameters, Ordered List and operations, Sparse Matrices, Storage pools, Garbage collection. Recursion-definition and processes, simulating recursion, Backtracking, Recursive algorithms, Tail recursion, Removal of recursion. Tower of Hanoi Problem.

**UNIT- II**

**Marks : 15**

Stack, Array Implementation of stack, Linked Representation of Stack, Application of stack: Conversion of Infix to Prefix and Postfix Expressions and Expression evaluation, Queue, Array and linked implementation of queues, Circular queues, D-queues and Priority Queues. Linked list, Implementation of Singly Linked List, Two-way Header List, Doubly linked list, Linked List in Array. Generalized linked list, Application: Garbage collection and compaction, Polynomial Arithmetic.

**UNIT- III**

**Marks :15**

Trees: Basic terminology, Binary Trees, , algebraic Expressions, Complete Binary Tree, Extended Binary Trees, Array and Linked Representation of Binary trees, Traversing Binary trees, Threaded Binary trees, Binary Search Tree (BST ), AVL Trees, B-trees. Application: Algebraic Expression, Huffman coding Algorithm.

**UNIT- IV**

**Marks : 15**

Internal and External sorting ,Insertion Sort, Bubble Sort, selection sort Quick Sort, Merge Sort, Heap Sort, Radix sort, Searching & Hashing: Sequential search, binary search, Hash Table, Hash Functions, Collision Resolution Strategies, Hash Table Implementation. Symbol Table, Static tree table, Dynamic Tree table.

## **UNIT- V**

**Marks : 15**

Graphs: Introduction, Sequential Representations of Graphs, Adjacency Matrices, Traversal, Connected Component and Spanning Trees, Minimum Cost Spanning Trees.

### **Reference Books**

- 1 Introduction to Data Structures, Abstract Data Types Stacks - Introduction to Stack & Primitive
- 2 Operation on Stack, Stack's Applications - Infix, Postfix & Prefix Expressions, Recursion, Multiple
- 3 Stacks Queues -Introduction to Queues, Primitive Operations on Queues, Circular Queue, Dequeue, Priority Queue.
- 4 Introduction to Data Structures, Abstract Data Types Stacks - Introduction to Stack & Primitive
- 5 Operation on Stack, Stack's Applications - Infix, Postfix & Prefix Expressions, Recursion, Multiple
- 6 Stacks Queues -Introduction to Queues, Primitive Operations on Queues, Circular Queue, Dequeue, Priority Queue.



**Advance DBMS with Oracle  
(BCA-0302)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0302	Advance DBMS with Oracle	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Oracle Product Details, RDBMS Components, Client/Server Computing and Oracle, Oracle Architecture, Oracle Data Types, Working With Tables. Data Constraints, Column Level & Table Level Constraints Defining Constraint on tables.

**UNIT- II**

**Marks : 15**

Select Command, Oracle Operators, Range Searching, Pattern Matching, ORACLE FUNCT ION, Grouping Data Fro m Tables In SQL, Manipulation Data In Sql ,Joining Multiple Tables (Equi Joins),Joining A T able To Itself (Self Joins),Sub Queries Union, Intersects & Minus Clause, Dynamic SQL, Oracle Functions.

**UNIT- III**

**Marks :15**

Creating Vie w, Working with View, Materialized Vie w, Creating Indexes. Creating and Managing User, Introducing PL/SQL, Using Cursor

**UNIT- IV**

**Marks : 15**

Procedures & Functions Concept, Creation, Execution, T riggers Concept, Use, Ho w T o Apply Database T riggers, Type Of Triggers

**UNIT- V**

**Marks : 15**

Oracle DBA. Create Database, Create T able Space. Oracle Backup & Recover y, Oracle Utilities SQL Loader, Export and Import, Feature Of Oracle Internet Database, Oracle 9i Application Server. Planning Oracle Applications.

## **Reference Books**

- 1 ORACLE 9I ORACLE A BEGINNERS GUIDE BY MICHAEL ABBEY & MICHAEL J. COREY TMH PUBLICATIONS
- 2 UNLEASHED ORACLE THE ORACLE COOK BOOK BY LIEBSCHUTY, BPB PUBLICATIONS
- 3 ORACLE DATABASE 11G BY SATISH ASNANI PHI PUBLICATION
- 4 SQL,PL/SQL THE PROGRAMMING LANGUAGE OF ORACLE IVAN BAYROSS BPB PUBLICATIONS.





**Object Oriented Programming with C++  
(BCA-0303)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i=d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g)		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0303	Object Oriented Programming with C++	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Overview of C++: Object oriented programming, Concepts, Advantages, Usage. C++ Environment: Program development environment, the language and the C++ language standards. Introduction to various C++ compilers, C++ standard libraries, Prototype of main() function, Data types. C++ as a superset of C, New style comments, main function in C++, meaning of empty argument list, function prototyping, default arguments and argument matching. User defined data types: enumerated types, use of tag names, anonymous unions, scope of tag names. Classes & Objects : Classes, Structure & Classes, Union & Classes, Inline Function, Scope Resolution operator, Static Class Members: Static Data Member, Static Member Function, Passing Objects to Function, Returning Objects, Object Assignment. Friend Function, Friend Classes

**UNIT- II**

**Marks : 15**

Array, Pointers References & The Dynamic Allocation Operators: Array of Objects, Pointers to Object, Type Checking C++ Pointers, The This Pointer, Pointer to Derived Types, Pointer to Class Members, References: Reference Parameter, call by reference and return by reference Passing References to Objects, Returning Reference, Independent Reference, C++'S Dynamic Allocation Operators, Initializing Allocated Memory, Allocating Array, Allocating Objects. Constructor & Destructor : Introduction, Constructor, access specifier for constructors, and instantiation, Parameterized Constructor, Multiple Constructor in A Class, Constructor with Default Argument, Copy Constructor, Destructor.

**UNIT- III**

**Marks :15**

Overloading as polymorphism: Function & Operator Overloading : Function Overloading, Overloading Constructor Function Finding the Address of an Overloaded Function, Operator Overloading: Creating A Member Operator Function, Creating Prefix & Postfix Forms of the Increment & Decrement Operation, Overloading The Shorthand Operation (I.E. +=, -= Etc), Operator Overloading Restrictions, Operator Overloading Using Friend Function, Overloading New & Delete, Overloading Some Special Operators,

Overloading [ ], ( ), -, Comma Operator, Overloading << And . Names paces: global namespace and namespace std, nested namespaces.

#### **UNIT- IV**

**Marks : 15**

Inheritance : Base Class Access Control, C, Protected Base Class Inheritance, Inheriting Multiple Base Classes, Constructors, Destructors & Inheritance, When Constructor & Destructor Function are Executed, Passing Parameters to Base Class Constructors, Granting Access, Virtual Base Classes. Virtual Functions & Polymorphism : Virtual Function, Pure Virtual Functions, Early Vs. Late Binding.

#### **UNIT- V**

**Marks : 15**

Exception Handling, Exception handling in C++, try, throw, catch sequence, multiple catch blocks, uncaught exceptions, catch-all exception handler, The C++ I/O System Basics : C++ Streams, The Basic Stream Classes C++ Predefined Streams, Formatted I/O: Formatting Using The Ios Members, Setting The Format Flags, Clearing Format Flags, An Overloaded Form Of Setf ( ), Using Width() Precision() and Fill(), Using Manipulators to Format I/O, Creating Your own Manipulators.

#### **Reference Books**

1. HERBERT SCHILDT, "C++ THE COMPLETE REFERENCE " - TMH PUBLICATION  
E.BALGURUS WAMY, "C++ ", TMH PUBLICATION ISBN 0 -07-462038-X
- 2 M KUMAR "PRO GRAMMI NG IN C++", TMH PUBLICA TIONS



**Elementary Mathematics**  
**(BCA-0304)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0304	Elementary Mathematics	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Sets and Their Representations. Empty Set, Finite & Infinite Sets, Equal Sets. Subsets. Subsets of the Set of Real Numbers Especially Intervals (with notations). Power Set. Universal Set. Venn Diagrams. Union and Intersection of Sets. Difference of Sets. Complement of a Set. Ordered Pairs, Cartesian Product of Sets. Number of Elements in the Cartesian Product of two Finite Sets. Cartesian Product of the Reals with itself (upto  $R \times R \times R$ ). Definition of Relation, Pictorial Diagrams, Domain. Co- domain and Range of a Relation.

**UNIT- II**

**Marks : 15**

Function as a special kind of relation from one set to another. Pictorial representation of a function, domain, co-domain & range of a function. Real valued function of the real variable, domain and range of these functions, constant, identity, polynomial, rational, modulus, sig num and greatest integer functions with their graphs. Sum, difference, product and quotients of functions. Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function. Binary operations.

**UNIT- III**

**Marks :15**

Complex numbers, Brief description of algebraic properties of complex numbers. Arg and plane and polar representation of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system. Fundamental principle of counting. Factorial n. (n!), Permutations and combinations,.

**UNIT- IV**

**Marks : 15**

Sequence and Series. Arithmetic progression (A. P.). arithmetic mean (A.M.) Geometric progression (G.P.), general term of a G.P sum of n terms of a G.P., geometric mean (G.M.), relation between A.M. and G.M. Sum to n terms of the special series  $S_n$ ,  $S_{n^2}$  and  $S_{n^3}$ .

## **UNIT- V**

**Marks : 15**

Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axes, point slope form, slope-intercept form, two point form, intercepts form and normal form. General equation of a line. Distance of a point from a line. Standard equation of a circle, Coordinate axes and coordinate planes in three n dimensions. Coordinates of a point.

### **Reference Books**

- [www.e-booksdirectory.com/mathematics](http://www.e-booksdirectory.com/mathematics)
- [www.origoeducation.com/go-maths](http://www.origoeducation.com/go-maths).
- BASICS OF MATHEMATICS BY R D SHARMA.



**Communicative English-II**  
(BCA-0305)

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0305	Communicative English-II	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Nouns : Countable, Uncountable, Pronoun : Personal, Relative and others, Verb and Verb structures (infinitives and gerundial), Linking Devices.

**UNIT- II**

**Marks : 15**

Adverbs and adverb phrases, Comparisons and Intensification Modifiers and adverbs, Adjectives and Adjective Phrases.

**UNIT- III**

**Marks : 15**

Synonyms Antonyms & Homonyms, Diminutives and Derivatives, Jargons or Registers.

**UNIT- IV**

**Marks : 15**

Precise writing, Paragraph, Curriculum Vitae/Resume, Preparation of questionnaire for Interview skills.

**UNIT- V**

**Marks : 15**

Effective Public Speaking : Features & aspects of EPS, genral mistakes & how to avoid them, structure of an ideal speech/technical presentation.

**Reference Books :**

- 1 INTERMEDIATE ENGLISH GRAMMAR BY RAYMOND WILLIAMS
- 2 VOCABULARY BY MICHAEL MC CARTHU AND FELICITY O'DELL
- 3 ENGLISH GRAMMER BY JAYANTHI DAKSHINA MURTH
- 4 A PRACTICAL ENGLISH GRAMMAR BY THOMSON AND MARTINET



## Computer Networks (BCA-0401)

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0401	Computer Networks	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

### UNIT- I

**Marks : 15**

Networking - Needs and Advantages, Network, Types- Client, Server and Peers, Introduction to various types of servers. Wired & Wireless transmission, Base band and Broadband transmission, Layered Technology, Overview of OSI Model

### UNIT- II

**Marks : 15**

Transmission Media Types- Properties & Specialty of Various Media Types, Comparative Study. Network Topology-Bus, Star, Ring, Star Bus, Star Ring, Mesh Features, Advantages and Disadvantages of Each Type, Network Adapters Cards.

### UNIT- III

**Marks : 15**

The Theoretical Network Model – OSI, Introduction to IEEE 802 standards, Ethernet, Token Rings, FDDI, Network Scaling-No, of nodes, distance, software, speed, special requirements ,Connectivity Devices: Modem, Repeater, Hub, bridge Gateway.

### UNIT- IV

**Marks : 15**

Overview of TCP/IP reference model. Protocols- IP, TCP, UDP, ARP, SNMP, FTP, SMTP, TELNET Protocols, IP Addressing Class A, B & C. Domain Name Addressing, URL, E-mail address.

### UNIT- V

**Marks : 15**

Network Security : Network Security Issues, Security Barriers Needs Firewall sand Features of Firewalls, Types of Firewall Technology, Network Level and Application Level, IP Packets Filter Screening Routers, Limitations of Firewalls.

### Reference Books

- 1 NETWORKING ESSENTIALS : STUDY GUIDE MCSE AMES CHEWS
- 2 CHARLES PERKINS, MATTHEW STREBE BPB PUBLICATIONS.
- 3 LOCALAREA NETWORKS' S.K.BASANDRA & S. JAISWAL,GALGOTIA PUBLICATIONS
- 4 COMPUTER NETWORK ANDREW & T ANENBAUM,
- 5 DATA AND COMPUTER COMMUNICATION WILLIAM STERLING
- 6 DATA COMMUNICATION BY PRAKASH C GUPTA



**System Analysis and Design  
(BCA-0402)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0402	System Analysis and Design	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

System Concept: Definition, Characteristics, Elements of System, Physical and abstract system, Open and Closed system, ,System Development Life Cycle: Various phases of system development, Considerations for system planning and control for system success, System Planning.

**UNIT- II**

**Marks : 15**

Initial Investigation: Determining Users Requirements and Analysis, Fact Finding Process and Techniques. Feasibility Study: Determination of Feasibility Study, Technical, Operational & Economic Feasibilities, Data Analysis, Cost and Benefit Analysis.

**UNIT- III**

**Marks :15**

Tools of Structured Analysis: Data Dictionary, Form, Gantt Charts, System Model, Pseudo Codes, Flow Chart System Flow Chart, Decision Tree, Decision Tables, Input/ Output and Form Design: Input and Output Form Design Methodologies, Menu, Screen Design, Layout Consideration.

**UNIT- IV**

**Marks : 15**

User Manual, Programming Manual, Programming Specifications, Operator Manual. System Testing & Quality: System Testing and Quality Assurance, Software Maintenance. System Security: Data Security, Disaster/ Recovery Threat and Risk Analysis.

**UNIT- V**

**Marks : 15**

Organization of EDP: Introduction. Job Responsibilities & duties of EDP Personnel's- EDP manager, System Analyst, Programmers, Operators etc. Essential features in EDP.

**Reference Books**

- SYSTEM ANALYSIS & DESIGN BY V K JAM, DREAMTECH PRESS
- MODERN SYSTEM ANALYSIS &DESIGN BY A HOFFER, F GEORGE, S VALACIAH LOW PRICED EDN. PEARSON EDUCATION.
- INFORMATION TECHNOLOGY & COMPUTER APPLICATIONS BYVK.KAPOOR SULTAN



<b>Programming with VB.Net (BCA-0403)</b>
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Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0403	Programming With VB.Net	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I****Marks : 15**

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser. The environment: Editor tab, format tab, general tab, docking tab. visual development & event drive Programming -Methods and events.

**UNIT- II****Marks : 15**

The VB.NET Language- Variables -Declaring variables, Data Type of variables, Forcing variables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Collections, Subroutines, Functions, Passing variable Number of Argument Optional Argument, Returning value from function. Control flow statements: conditional statement, loop statement. Msg box & Input box.

**UNIT- III****Marks :15**

Working with Forms: Loading, showing and hiding forms, controlling One form within another. GUI Programming with Windows Form: Textbox, Label, Button, List box, Combo box, Checkbox, Picture Box, Radio Button, Panel, scrollbar, Timer, List View, Tree View, toolbar, Status Bar. There Properties, Methods and events. Open File Dialog, Save File Dialog, Font Dialog, Color Dialog, Print Dialog. Link Label. Designing menus: Context Menu, access & shortcut keys.

**UNIT- IV****Marks : 15**

Object oriented Programming: Classes & objects, fields Properties, Methods & Events, constructor, inheritance. Access Specifiers: Public Private, Protected. Overloading, My Base & My class keywords. Overview of OLE, COM technology & .NET.



## **UNIT- V**

**Marks : 15**

Database programming with ADO.NET Overview of ADO, from ADO to ADO.NET, Accessing Data using Server Explorer. Creating Connection, Command, Data Adapter and Data Set with OLEDB and SQLDB. Display Data on data bound controls, display data on data grid.

### **Reference Books**

- VB.NET PROGRAMMING BLACK BOOK BY STEVEN HOLZNER DREAMTECH PUBLICATIONS
- MASTERING VB.NET BY EVANGELOS PET ROUSOS- BPB PUBLICATIONS
- INTRODUCTION TO .NET FRAMEWORK -WORX PUBLICATION
- MSDN. MICROSOFT.COM/ NET WWW.GOTDOTNET.COM



**Internet Programming  
(BCA-0404)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0404	Internet Programming	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Internet Evolution, Concepts, Internet Vs Intranet, Internet Services USENET, GOPHER, WAIS, ARCHIE (WWW) - History, Working, Web Browsers, Its Functions, URLs, Web Sites, Domain Names, Concept of Search Engines, Search Engines types, Web Servers, E-Mail: Sending & Receiving Email, Free E-Mail Services.

**UNIT- II**

**Marks : 15**

Concepts of Hypertext, HTML Introduction, Features, Uses & Versions Using Various HTML Tags, Elements of HTML Syntax, Head & Body Sections, Inserting Texts, Text Alignment,

**UNIT- III**

**Marks : 15**

Using Images In Pages, Hyperlinks Text and Images, Bookmarks, Backgrounds and Color Controls, Creating and Using Tables in HTML, Use of Font Size & Attributes, List Types and its Tags. Introduction to WYSIWYG Design tools for HTML, Overview of MS- FrontPage.

**UNIT- IV**

**Marks : 15**

JavaScript Overview, JavaScript and the WWW, JavaScript vs. VBScript, JavaScript vs. Java, JavaScript versions, JavaScript Comments, Variables: Variables overview, declaring variables, Types of variables, Casting variables.

**UNIT- V**

**Marks : 15**

JavaScript Alert box, Prompt & confirm. Expressions: Arithmetic operators, Assignment operators, Logical operators, Expressions and precedence, Statements: If statement, For statement, While statement, Break/Continue ,

**Reference Books**

- LEARN HTML IN A WEEKEND BY STEVEN E. CALLIHAN, PHI
- USING HTML BY LEE ANNE PHILLIPS,
- PHI TEACH YOURSELF JAVASCRIPT IN 24 HRS. BY MICHAEL MONCUR, TECHMEDIA



**Computerized Accounting  
(BCA-0405(A))**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0405(A)	Computerized Accounting	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Basic Concepts of Accounting, Financial Statements, Financial Statement Analysis, Cost Centre, Basic concepts of Inventory.2.Tally Configuration & INI setup, Data Directory & Folders configuration, Single & Multiple User, Tally Screen Components, Mouse / Keyboard Conventions & Key, Combinations, Switching between screen areas, Quitting Tally. Maintaining Company Data, Basic Company Details, Create/Alter/Select/Load/Close a Company, Chart of Accounts, Company Features, and Configuration.

**UNIT- II**

**Marks : 15**

Create, Alter & Display Groups and Ledgers, All accounting voucher types Accounting Voucher transactions, Account Invoice transactions, Excise Invoice, Export Invoice, Transactions using Bill-wise details, Bank Reconciliation, Interest calculations using simple & advance parameters, Interest calculations on outstanding balances & on invoices, Use of voucher class, adjustment of interest, Creation of voucher class, Invoice entry in a class situation, Create, Alter & Delete Budgets for groups, ledgers & cost centre, Defining credit limit & credit period, Display Budgets & variances, Create, Alter & Delete a scenario. Journal Transactions, payment voucher, Go down summary.

**UNIT- III**

**Marks :15**

**ACCOUNTING REPORTS AND BOOKS OF ACCOUNTS**

Reports like balance sheet, Profit & Loss account, Ratio analysis Trial Balance. Accounts books like cash / bank book, All Ledgers Group summary & vouchers, Sales, purchase & journal registers, Cost centre & category summary, Cost centre breakup ledger & group breakup, outstanding receivables & payables, interest receivable & payable, Statistics, Cash & Fund flow, Day book List of Accounts, Reversing journals, optional vouchers, post-dated vouchers.

**UNIT- IV**

**Marks : 15**

**INVENTORY ACCOUNTING AND INVENTORY REPORTS**

Create, Alter & Display Stock Groups and Stock Items, All inventory voucher types and transactions Inventory details in accounting vouchers, Reports like Stock summary, Inventory books like Stock item,

Group summary, Stock transfers, Physical stock register, Movement analysis, Stock group & item analysis, stock category analysis Ageing analysis, Sales order & Purchase order book, Statement of inventory related to Go downs, categories, stock query, Reorder status, Purchase & Sales order summary, Purchase & Sales bill pending, Exception reports like negative stock & ledger, overdue receivables & payables, memorandum vouchers, optional vouchers, post-dated vouchers, reversing journals.

## **UNIT- V**

**Marks : 15**

### **PRINTING, HOUSEKEEPING AND ADMINISTRATION**

Cheque Printing, Common printing options, Different printing formats, Multi-Account printing, Dynamic-Report specific options, Creating Group Company, Use of Tally vault, Using Security control & defining different security levels, Use of Tally Audi., Back-up & Restore, Splitting company data, Export & import of Data, ODBC compliance, use of E-mail, Internet publishing, Upload, web browser & online help, Re-write data.

### **Reference Books**

- IMPLEMENTING TALLY 6.3 BY NADHANI; ISBN: 81 7656494X BPB PUBLICATIONS,
- BPB TALLY 6.3 BY BPB EDITORIAL BOARD (HINDI) BPB PUBLICATIONS ISBN81 - 7656-594-6



**Multimedia  
(BCA-0405(B))**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0405(B)	Multimedia	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Introduction to Multimedia: Needs and areas of use, Development platforms for multimedia, Identifying Multimedia elements Text, Images, Sound, Animation and Video, Making simple Multimedia with PowerPoint. Concepts of plain & formatted text, RTF & HTML texts, Object Linking and Embedding concept.

**UNIT- II**

**Marks : 15**

Sound and its Attributes, Mono V/S Stereo Sound, Sound Channels, Sound and its Effect In Multimedia, Analog V/S Digital Sound, Overview Of Various Sound File Formats On PC WAV, MP3.

**UNIT- III**

**Marks : 15**

Importance of Graphics in Multimedia, Vector and Raster Graphics, Image Capturing Methods Scanner, Digital Camera Etc. Various Attributes of Images Size, Color, Depth , Resolution etc, Various Image File Format BMP, DIB, EPS, PIC, and TIF Format Their Features and imitations, Basics of animation, Software Tools for animation.

**UNIT- IV**

**Marks : 15**

Basics of Video Analog and Digital Video, How to use video on PC. Introduction to graphics accelerator cards, Brief note on various video standards NTSC, HDTV, Introduction to video capturing Media & instrument Videodisk

**UNIT- V**

**Marks : 15**

Virtual Reality Terminology Head Mounts Display (HMD), Boom, Cave, Input Devices and Sensual Technology, Characteristic If Immersive VR Shared Virtual Environments.

**Reference Books**

- MULTIMEDIA: MAKING IT WORK (4TH EDITION) BY THYVAUGHAN, TATA MCGRAW HILLS.
- MULTIMEDIA IN ACTION JAMES E SHUMAN VIKAS PUBLISHING HOUSE.
- MULTIMEDIA BASICS VOLUME / TECHNOLOGY, ANDREAS HOI
- ZINGER, FIREWALL MEDIA (LAXMI PUBLICATIONS PVT. LID) NEW DELHI.



**Operating System  
(BCA-0501)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0501	Operating System	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Definitions, functions and types of operating system, components, Operating system Services, System Calls, programs, System structure.

**UNIT- II**

**Marks : 15**

Process Concepts, process state & process control block, Process Scheduling, Scheduling Criteria, Scheduling Algorithms, Multiple Processor Scheduling Real-Time Scheduling, Threads.

**UNIT- III**

**Marks :15**

Critical Section Problem , Semaphores, Classical Problem Of Synchronization, Deadlock Characterizations, Method for Handling, Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.

**UNIT- IV**

**Marks : 15**

Logical versus physical address space, Swapping, Contiguous Allocation, Paging, Segmentation, Virtual Memory, Demand Paging, Page Replacement, Page Replacement Algorithms.

**UNIT- V**

**Marks : 15**

Disk Scheduling, Disk Management, Swap Space Management, Disk. reliability, Stable Storage Implementation. File Concepts Directory structure, Protection, File system in Linux.

**Reference Books**

- OPERATING SYSTEM CONCEPTS BY SILBERSCHATZ & GALVIN, ADDISON EDITION.
- OPERATING SYSTEM CONCEPTS & DESIGN BY MILAN MILEN KOVIC, WESLEY PUBLICATION 6
- OPERATING SYSTEM CONCEPTS & DESIGN BY MILAN MILEN KOVIC, TMH PUBLICATION



**ASP .Net and C#  
(BCA-0502)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0502	ASP .Net and C#	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Overview of ASP.NET framework, Understanding ASP.NET Controls, Applications Web servers, installation of WS. Web forms, web form controls -server controls, client controls, web forms & HTML, Adding controls to a web form ,Buttons, Text Box, Labels, Checkbox, Radio Buttons, List Box, etc. Running a web Application, creating a multiform web project.

**UNIT- II**

**Marks : 15**

Form Validation: Client side validation, server Side validation, Validation, Controls: Required Field Comparison Range. Calendar control, Ad rotator, Control, Internet Explorer Control., State management-View state, Session state, Application state.

**UNIT- III**

**Marks : 15**

Architecture of ADO.NET, Connected and Disconnected Database, Create Connection using ADO.NET Object Model, Connection Class, Command Class, Data Adapter Class, Dataset Class. Display data on data bound Controls and Data Grid. Database Accessing on web applications: Data Binding concept with web, creating data grid, Binding standard web server controls. Display data on web form using Data bound controls

**UNIT- IV**

**Marks : 15**

Writing datasets to XML, Reading datasets with XML. Web services: Introduction, Remote method call using XML, SOAP, web service description language, building & consuming a web service, Web Application deployment.

## **UNIT- V**

**Marks : 15**

Overview of C#, C# and .NET, similarities & differences from JAVA, Structure of C# program. Language features: Type system, boxing and unboxing, flow controls, Classes, interfaces, Serialization, Delegates, Reflection.

### **Reference Books**

- VB.NET BLACK BOOK BY STEVEN HOLZNER DREAMIECH
- ASP.NET UNLEASHED
- C# PROGRAMMING WROX PUBLICATION
- C# PROGRAMMING BLACK BOOK BY MAN TELLES





**Java Programming  
(BCA-0503)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0503	Java Programming	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

C++ Vs JAVA, JAVA and Internet and WWW, JAVA support systems, JAVA, environment, JAVA program structure, Tokens, Statements, JAVA virtual machine, Constants & Variables, Data Types, Type Casting, Operators, Expressions & its Evaluation, Decision making and branching, Loops, Jumps in Loops, Labeled Loops.

**UNIT- II**

**Marks : 15**

Defining a class, Adding variables and methods, Creating objects, Accessing class members, Constructors, Method overloading , Static members, Nesting of methods, Inheritance: Extending a class, Overriding methods, Final variables and method~, Final classes, Finalizes methods, Abstract methods and classes, Visibility control.

**UNIT- III**

**Marks :15**

Arrays, One dimensional & two dimensional, Strings, Vectors, Wrapper classes, Defining interfaces, Extending interfaces, Implementing interfaces, Accessing interface Variables, System packages, Using system packages, Naming conventions, Creating packages, Accessing a package, Using package, Adding a class to a package, Hiding classes

**UNIT- IV Marks : 15**

Threads, Creating threads, Extending the threads class, Stopping and blocking a thread, Life cycle of a thread, Using thread methods, Thread exceptions, Thread priority, Synchronization, Implementing the runnable Interface.

**UNIT- V Marks : 15**

Applets, Local and remote applets, Applets Vs applications, Writing applets, Applets life cycle, Creating an executable applet, Designing a web page, Applet tag, Adding applet to HTML file, Running the applet, Passing parameters to applets, Aligning the display, HTML tags & applets, Getting input from the user interface.

**Reference Books**

- PROGRAMMING JAVA 2ND EDITION BY E. BALAGUR USVAMY, TMH PUBLICATIONS.
- PETER NORTON QUID E T O JAVA PROGRAMMING BY PETER NORTON, T ECHMEDIA PUBLICATIONS.



**Java Programming  
(BCA-0504)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0504	Science of Communication	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Introduction to communication theory, The fact of communication, Communication -Definition, Nature, Scope, Purpose. Process of Communication. Functions of Communication, Uses of Communication, The needs of communication, Communication and information, Communication and Languages.

**UNIT- II**

**Marks : 15**

Definition and elements of human communication, Socialization and role of communication in Socialization Types of communication, Intrapersonal communication, Interpersonal communication, Focused and unfocused interactions, group communication, mass communication, Interactive communication, Public Communication, Corporate communication.

**UNIT- III**

**Marks : 15**

Verbal communication, Non verbal communication, Importance of body language, Appropriate Body Postures ,Oral communication, Written communication, Visual communication, Signs ,Symbols and code system, communication skills, Dress code.

**UNIT- IV**

**Marks : 15**

Barriers of communication, Physical barriers of communication, Psychological barriers of communication, Linguistic and cultural barriers of communication, Mechanical barriers of communication, Removal of barriers.

**UNIT- V**

**Marks : 15**

Group communication: Types of Group discussion, Theories and Models, Decision making process, Leadership, Team work communication, Leadership skill Development, Group Discussion, Written Communication skills.

**Reference Books**

- MASS COMMUNICATION IN INDIA BY KEVAL J. KUMAR – A JAICO BOOK
- COMMUNICATION MOSAICS: AN INTRODUCTION TO THE FIELD



**Social Science - II**  
**(BCA-0505)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0505	Social Science - II	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Concept, definitions and importance of Political Science, Relations of Political Science with other social sciences, Concepts of power and authority, Basic elements of Indian constitution.

**UNIT- II**

**Marks : 15**

Indian Constitution - Historical Background , Constituent Assembly of India–Philosophical foundations of the Indian Constitution ,Preamble , Introduction to Fundamental Rights and Duties ,Citizenship

**UNIT- III**

**Marks :15**

Constitutional Remedies for citizens. Union Government , Structures of the Union Government and Functions , President , Vice President ,Prime Minister ,Cabinet , Parliament , Supreme Court of India , Governor ,Chief Minister , Cabinet – State Legislature , Judicial System in States , High Courts and other Subordinate Courts.

**UNIT- IV**

**Marks : 15**

Concept, Definitions and importance of Economics, Relations of Economics with other social sciences, Introduction to Indian Economy, Market, Principles of demand and supply, Consumer behavior, Concept of Globalization, Liberalization, Swadeshi.

**UNIT- V**

**Marks : 15**

Human Rights - the Basic concept: Individual, group, State, Civil Society. Liberty,. Freedom, Equality Justice, Violence, Counter Violence, Human Values: Humanity, Compassion, Virtues, Impact of social structure on human behavior, Role of socialization in human values, Modernization.

**Reference Books**

- DURGA DAS BASU, “ INTRODUCTION TO THE CONSTITUTION OF
- INDIA “, PRENTICE HALL OF INDIA, NEWDELHI
- R.C.AGARWAL, “(1997) INDIAN POLITICAL SYSTEM “, S.CHAND AND COMPANY, NEW DELHI.



**Web Development  
(BCA-0601)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0601	Web Development	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Introduction to PHP, History of PHP, Versions of PHP, Features of PHP, Advantages of PHP over Other Scripting Languages, Installation and Configuration of PHP, Data Types in PHP, PHP Syntax, Comments, PHP Variables and Constants, Scope of Variables, PHP String, String Manipulation, PHP Operators, Precedence of Operators, Expressions, Creating a PHP Script, Running a PHP Script.

**UNIT- II**

**Marks : 15**

Basic HTML, Embedding PHP in HTML, Passing Information between Pages, PHP \$\_GET, PHP \$\_POST, PHP Conditional Statements, PHP Looping Statements, Break, Continue, Exit, PHP Functions: Built-in and User Defined Function, Regular Expression Functions, Mathematical, Date and Time Functions, PHP Arrays: Creating Array and Accessing Array Elements,

**UNIT- III**

**Marks : 15**

PHP File Permissions, Working with Files: Opening, Closing, Reading, Writing a File; Working with Directory: Creating, Deleting, Changing a Directory; Working with Forms: Introduction to a Web Form, Processing a Web Form, Validating a Web Form, Input Validation, PHP with Client Side Scripting Language, Exception and Error Handling in PHP, Introduction to Cookies and Session Handling,

**UNIT- IV**

**Marks : 15**

Working with Database: PHP-Supported Databases; Using PHP & My SQL: Installation and Configuration of My SQL on Windows, Checking Configuration, Connecting to Database, Selecting a Database, Adding Table and Altering Table in a Database, Inserting, Deleting and Modifying Data in a Table, Retrieving Data, Performing Queries, Processing Result Sets,

## **UNIT- V**

**Marks : 15**

Code Re-use, require(), include(), and the include\_path, File System Functions and File Input and Output, File Uploads, Use of CSS, Introduction to Object Oriented Programming with PHP, Installing and Configuring Apache to use PHP on Windows, php.ini File,

### **Reference Books**

- PHP & MY SQL, BY VIKRAM VASWANI, TMH PUBLICATIONS
- PHP ESSENTIALS, BY JULIE C. MELONI, BPB PUBLICATIONS
- PHP 5 AND MY SQL BIBLE, BY TIM CONVERSE AND JOYCE PARK, WILEY-DREAMTECH INDIA PUBLICATIONS
- WEB TECHNOLOGIES, BLACK BOOK, DREAMTECH PRESS ATKINSON, LEON. CORE PHP PROGRAMMING, NEW YORK: PRENTICE HALL
- LEARNING PHP 5, BY DAVID SKLAR PUBLISHER O'REILLY MEDIA MASTERING PHP, BY CHARLES, PUBLISHER: BPB



**Linux & Shell Programming  
(BCA-0602)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0602	Linux & Shell Programming	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Linux introduction and file system - Basic Features, Different flavors of Linux. Advantages, Installing requirement, Basic Architecture of Unix/Linux system, Kernel, Shell. Linux File system-Boot block, super block, Inode table, data blocks, How Linux access files, storage files, Linux standard directories. Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, pwd, file, more, less, creating and viewing files using cat, file comparisons – cmp & comm, View files, disk related commands, checking disk free spaces. Partitioning the Hard drive for Linux, Installing the Linux system, System startup and shut-down process.

**UNIT- II**

**Marks : 15**

Essential linux commands Understanding shells, Processes in linux – process fundamentals, connecting processes with pipes, Redirecting input output, manual help, Background processing, managing multiple processes, changing process priority with nice, scheduling of processes at command, cron commands, kill, ps, who, sleep, Printing commands, touch, file related commands - wc, cut, dd, etc. Mathematical commands- bc, expr. Creating and editing files with vi & vim editor.

**UNIT- III**

**Marks : 15**

System administration: Common administrative tasks, configuration and log files, Role of system administrator, Managing user accounts-adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user’s accounts, creating and mounting file system, file security & Permissions, becoming super user using su. Getting system information with uname, host name, disk partitions & sizes, users, kernel. Backup and restore files, installing and removing packages with rpm command. KDE & Gnome graphical interfaces.

**UNIT- IV**

**Marks : 15**

Shell programming- Basic of shell programming, Various types of shell available in Linux, comparisons between various shells, shell programming in bash, read command, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, system shell variables, shell keywords, Creating Shell programs for automate system tasks. Simple filter commands – pr, head, tail, cut, paste, sort, uniq, tr. Filter using regular expressions – grep, egrep, and sed.

## **UNIT- V**

**Marks : 15**

Basic networking administration: Setting up a LAN using Linux, choosing peer to peer vs client/server model, setting up an Ethernet Lan, configuring host computers, checking Ethernet connecting, connecting to Internet, common networking administrative tasks, configuring Ethernet, initializing Ethernet Interface, ifconfig, netstat and netconfig commands, TCP/IP network, DNS services, routing using Linux Installation & Administration of mail server, ftp server and Apache web server.

### **Reference Books**

- UNIX - CONCEPTS & APPLICATIONS (THIRD ED.) – SUMITABHA DAS, T ATA MCGRAW HILL PUBLICATIONS.
- UNIX FOR PROGRAMMERS AND USERS (THIRD ED.) – GRAHAM GLASS & KING ABLES, PEARSON EDUCATION INDIA.(LOW PRICES EDITION



**Principles of Management  
(BCA-0603)**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0603	Principles of Management	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Management basics What is management, the history of management, Types of manager, manager qualities. Management responsibilities, management tasks and functions. The business environment defining the organization, organization structure, the quality organization, organizational changes, Centralization and Decentralization, managing changes. Management obligations, social and professional responsibilities, government regulations.

**UNIT- II**

**Marks : 15**

Strategy formulation the elements of strategy, the strategy formulation process, alliances and acquisitions, strategy formulation tools and Techniques, plan implementation. Decision making the nature of management decision, the decision making Process, decision making techniques.

**UNIT- III**

**Marks :15**

Information presentation and reporting - Principle, Type of Reports, Presentation on Modes, Function reporting system, Information and its uses, Characteristics of information, flow of information. Brief introduction to project planning and management and its tools/ techniques-Gantt chart, PERT/CPM. Human Resources management: Concepts & functions, Job analysis and role description.

**UNIT- IV**

**Marks : 15**

Management skills: Leadership and motivation The nature of leadership, leadership theories, Delegation, motivation and motivation theories, need of motivation, motivation techniques. Team building Defining and effective team, selecting team members, building teams, training and development. Effective communication The communication process, presentation skills Tools and techniques.



## **UNIT- V**

**Marks : 15**

Time management The importance of time, characteristics of management Tasks, determining time elements, time management techniques. Entrepreneurship Entrepreneur and its role, how to become an Entrepreneur, essentials steps to become an entrepreneur, EDP training.

### **Reference Books**

- S.K. BASANDRA, "COMPUTERS TODAY", GALGOTIA PUBLICATIONS
- MAZDA, ENGINEERING MANAGEMENT, ADDISEN WESLEY
- KOONTZ H, "ESSENTIALS OF MANAGEMENT", TMH PUBLICATIONS



**Advanced Mathematics**  
**(BCA-0604(A))**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0604(A)	Advanced Mathematics	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

Matrices - concept, notation, order, equality, types. Transpose of a Matrix, Symmetric and Skew symmetric matrices. Addition, multiplication and scalar multiplication of matrices, simple properties of addition, multiplication and scalar multiplication. Concept of elementary row and column operations. Invertible matrices. Determinant of a square matrix (up to 3 x 3 matrices), properties of determinants, inverse of a square matrix.

**UNIT- II**

**Marks : 15**

Vectors and scalars, magnitude and direction of a vector. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Scalar (dot) product of vectors, projection of a vector on a line. Vector (cross) product of vectors. Mathematically acceptable statements. Connecting words/ phrases – consolidating the understanding of "if and only if (necessary and sufficient) condition", "implies", "and/or", "implied by", "and", "or", "there exists" and their use through variety of examples related to real life and Mathematics.

**UNIT- III**

**Marks : 15**

Differential coefficient from first principle, Differential coefficient of trigonometric function, Differential coefficient of product and quotient of two functions, Differential coefficient of function of a function, Successive Differentiation, Standard Integrals, Method of substitution and Integration by parts.

**UNIT- IV**

**Marks : 15**

Definition of Statistics, Raw data, Classification of data, Average, Scatter range, Relationship between Mean, Median, Mode, Dispersion, Mean Deviation, Standard Deviation, Variance, Coefficient of Variance.

**UNIT- V**

**Marks : 15**

Meaning of Probability, Random Experiment an outcome, Sample Space, Sample Point, Types of Sample Space, Types of Events, Probability of an Event, Total and Conditional Probability, Probability distribution of a random Variable, Repeated independent (Bernoulli) trials and Binomial distribution.

**Reference Books**

[www.e-booksdirectory.com/mathematics](http://www.e-booksdirectory.com/mathematics)

- [www.origoeducation.com/go-maths](http://www.origoeducation.com/go-maths).
- BASICS OF MATHEMATICS BY R D SHARMA.



**E-Commerce  
(BCA-0604(B))**

Paper code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		Int (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
BCA-0604(B)	E-Commerce	4	-	-	4	75	25	25	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 15**

E-Commerce an Introductions, Concepts, Advantages and Disadvantages, Technology in E-Commerce, Benefits and impact of E-commerce on travel industry, Goals of E-Commerce, Difference between Ecommerce and E Business, Models of E-Commerce, Limitations and Advantages of E-Commerce.

**UNIT- II**

**Marks : 15**

Electronic Payment Systems- Introduction, Types of Electronic Payment Systems, Electronic Payment Systems, Smart Cards and Electronic Payment Systems, Credit Card-Based Electronic Payment Systems, Risk and Electronic Payment Systems.

**UNIT- III**

**Marks :15**

E-Security Network and Web Site Risk for E-Business, Information Technology Act 2000 and its Highlights Related to E-commerce, E-Security, Firewalls, Electronic Market / E- Shop, Introduction to Security, Types of Securities, Security Tools, Network Security.

**UNIT- IV**

**Marks : 15**

E-Governance, E-democracy, Government Efforts to Encourage Citizen Participation, Privacy and Security Issues, Information Security Management Digital Divide. Applications in Governance, E government, Government –tobusiness, Business-to-Government and Citizen-to-Government, E Governance Models.

**UNIT- V**

**Marks : 15**

Introduction of Cyber Crime, Categorizing Cyber Crime, Information Warfare-Concept, information as an Intelligence Weapon, Attacks and Retaliation, Attackand Defense. Cyber Law.

**Reference Books**

- FRONTIERS OF ELECTRONIC COMMERCE, BY- KALAKOTA, RAVI;
- STONE, TOM; WHINSTON, ANDREW B, ADDISON WESLEY PUBLISHING CO, ISBN 8178080575
- E-COMMERCE AN INDIAN PERSPECTIVE BY P. TJOSEPH, S.J. PRENTICE-HALL OF INDIA