BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI-24.

BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

Eligibility : Higher secondary (+2) students with Mathematics as one of his/her subjects

REVISED SUBJECT OF STUDY AND SCHEME OF EXAMINATIONS

(For the candidates to be admitted from the academic year 2003-2004 onwards through Centre for Distance Education)

Non – Semester Pattern

Year	Part	Papers	Exam Hours	Marks
I	I	Language Paper – I	3	100
	II	English Paper – I	3	100
	III	Major Paper-I : Programming in C	3	100
		Major Paper- II : Data Structures and Algorithms in C++	3	100
		Practical-I : C Programming Lab	3	50
		Practical – II :C++ Programming Lab	3	50
		First Allied Paper-I : Numerical and Statistical Methods.	3	100
		First Allied Paper –II : Operations Research	3	100
II	I	Language Paper – II	3	100
	II	English Paper – II	3	100
	III	Major Paper – III : Relational Data Base Management Systems	3	100
		Major Paper – IV – Operating Systems	3	100
		Practical – III : Financial Accounting Using DBMS Package (Foxpro or Equivalent Package)	3	50
		Practical – IV : PC Packages Lab.	3	50
		Second Allied Paper – I : Financial Accounting	3	100
		Second Allied Paper – II : Digital Circuits and Design.	3	100

III	III	Major Paper – V : Visual Programming	3	100
		Major Paper – VI: Data communications and Networks	3	100
		Major Paper – VII : Object Oriented System Analysis and Design.	3	100
		Major Paper – VIII : E-Commerce and its Applications	3	100
		Major Paper – IX : Multimedia and its Applications	3	100
		Major Paper – X : ASP Programming	3	100
		Major Paper – XI : Artificial Intelligence.	3	100
		Practical – V : Visual Programming Lab (VB)	3	50
		Practical – VI : ASP Programming Lab	3	50
		Project	-	100
			Total	2300

Syllabi for Major, Allied Papers and Major Practicals are common to both B.C.A. Regular and CDE candidates.

Practical 45 marks, Record 5 marks.

Question Paper Pattern:

Section A- 10 x 2 marks = 20 marks

Short answers – Carrying 2 marks each – Two lines – 10 questions (no choice) Two questions from each of the five units.

Section B- 5 x 6 marks = 30 marks

Paragraph answers – 200 words – Either OR type – One from each of the five units.

Section C- 5 x 10 marks = 50 marks
Essay type – 600 words – Either OR type-One from each of the five units.

MAJOR PAPER – I : PROGRAMMING IN C

UNIT – I

Evolution and Applications of C - structure of a C program – Data types – Declarations – operators – Expressions – Type conversions – Built-in functions.

UNIT – II

Data Input and Output – Control statements: IF, ELSE-IF, GOTO, SWITCH, WHILE-DO, DO-WHILE, FOR, BREAK and CONTINUE.

UNIT – III

Functions: Defining and Accessing Arguments – recursive functions – storage classes – Arrays: Defining and processing Arrays – Multidimensional arrays – passing arrays to functions – Arrays and strings – String functions – String Manipulation.

UNIT – IV

Pointers – Pointer Declarations – Operations on pointers – pointers to functions – Pointer and strings – pointers and arrays – array of pointers – structures – structures and pointers – unions.

UNIT – V

Data files – Opening, closing and processing files – files with structures and unions – register variables – Bitwise Operations – Macros – Preprocessing.

Text Book:

"Programming in C" – E.Balagurusamy – Tata McGraw Hill Publications.

Books for Reference:

1. "Programming with C" – Byron S.Gottfried – Schaum's outline series – Tata McGraw Hill Publications.

2. "The Sprit of C" – Mullish cooper – Schaum's Outline Series – Tata McGraw Hill Publications.

3. "A first course in Programming with C" – T.Jeyapoovan, Vikas Publishing Hous Pvt. Ltd., New Delhi.

MAJOR PAPER – II : DATA STRUCTURES AND ALGORITHMS IN C++

UNIT – I

Introduction to the Basic concepts of C++ Language – Token's, Keyboards, Data types, variables, manipulators – Expression and Control structures – Functions – Function prototyping – call by reference – Function overloading – friend and inline functions – classes and objects – constructors and Destructors.

UNIT – II

Operator overloading – Type conversions – Inheritance – Single, multiple, Hierachical, Hybrid – Polymorphism – Pointers – Virtual functions – Console I/O Operations.

UNIT – III

Files – classes for file stream operations – Opening, Closing and Processing files – End of file detection – File pointes – Updating a file – Error Handling during file operations – Command line arguments – Templates – Exception Handling.

UNIT – IV

Linked lists – Singly linked list, Doubly linked lists, Circular lists, Skip lists, Self-Organizing list – Sparse Tables – Standard Template – Stacks and Queues priority Queues, Stacks, Queues, Priority Queues in the Standard Template Library.

UNIT – V

Binary Trees – Trees, Binary Tree, Binary search Trees, Implementation Binary Trees, Searching a Binary search Tree, Tree Traversal – Insertion – Deletion – Balancing a Tree – Self – Adjusting Trees – Heaps – Polish notation and Expression Trees – Sorting: Insertion, Selection, Bubble, Heap and Quick sort methods.

Books for Study:

1. "Object Oriented Programming with C++" – E.Balagurusamy, Tata McGraw Hill, Publishing Limited, New Delhi- 1995.
2. "Data structures and Algorithms in C++" – Adam Drozdek, Vikas Publishing House, New Delhi – 2001.

Books for Reference:

1. "Object Oriented Programming in C++", - Robert Lafore, Galgotia, 1994.
2. "C++ - The Complete Reference" – Herbert Schitt, 3rd Edition, Tata McGraw Hill, Publishing Limited, 1999.
3. "Fundamentals of Data Structure – Ellis Horowitz and Sartaj Sahir", Galgotia Publications.

PRACTICAL – I : C PROGRAMMING LAB

1. Solution of a Quadratic Equation (all cases).
2. Sum of Series (Sine, Cosine, e^x).
3. Ascending and Descending order of numbers using arrays (use it to find largest and smallest numbers).
4. Sorting of names in alphabetical order.
5. Matrix Operations (Addition, Subtraction, Multiplication – use functions).
6. Finding factorials, generating Fibonacci Numbers using recursive functions.
7. String Manipulation without using String functions (String length, String Comparison, String copy, Polidrome checking, counting words and lines in strings – use function pointers).
8. Bisection and Newton-Raphson method
9. Lagranges Interpolation formula.
10. Gauss Elimination Method.
11. Euler and Runge-Kutta (II order only) methods.
12. Trapezoidal and Simpson's $1/3^{rd}$ Rule.
13. Mean, Standard Deviation, Variance.
14. Correlation – regression coefficients.
15. Creation and Processing of Sequential files for payroll and Mark list preparation (use structures for Record Description).

PRACTICAL – II

C++ PROGRAMMING LAB.

1. Simple Air-line Ticket reservation using linked list.
2. Simple line editor using linked list.
3. Adding, large floating – point numbers using stacks. Extend this program to other arithmetic Operations such as –, * and /.
4. To convert a number from decimal notation to a number expressed in a number system whose base is a number between 2 and 9, Using stacks and queues.
5. Binary Search – Insertion, Deletion.
6. To accept arithmetic expression written in Prefix (Policy) notations, build an expression tree and then traverse the tree to evaluate the expression.
7. Functions for inserting, deleting a node in a threaded tree in which threads are put only in the leaves.
8. Functions to count the number of nodes in a Binary tree, number of leaves, number of right children and Height of the tree and to check whether the tree is perfectly balanced.
9. Depth-First Traversal in trees.
10. Deletion of nodes in a binary tree by merging and copying.
11. Sorting Techniques: Insertion, Selection, Quick sort, Heap sort.

FIRST ALLIED PAPER – I : NUMERICAL AND STATISTICAL METHODS

UNIT – I

Numerical methods – errors in numerical calculations – transcendental equation – introduction – Bisection method – iteration method – Method of false position – Newton – rapson method.

UNIT – II

Interpolation – Newton's formulae (forward & backward) for interpolation – Lagrange's interpolation formula – simultaneous linear equations – Gauss Elimination and Gauss Jordan methods – Gauss Seidal method.

UNIT – III

Numerical integration – Trapezoidal and Simpson's rule – differential equation – euler, runge-kutta and predictor and corrector methods.

UNIT – IV

Mathematical expectation – variance – covariance – moment generating functions – theoretical distributions – binomial, poission, normal and exponential distributions – MGFS of these distribution – additive properties – recurrence relations for the moment.

UNIT – V

Linear correlation and regression – properties of correlation and regression coefficients – numerical problems for finding the correlation and regression coefficients.

Reference:

1. "Introductory methods of numerical analysis", S.S.Sastry, PHI, New Delhi 1982.

2. M.K.Jain, S.R.K.Iyengar and R.K.Jain "Numerical methods for science and Engineering computation", Wiley Eastern Limited – 2nd edition –1995.

3. Gupta S.C.and Kapoor V.K.-Fundamentals of Statistics – Sultan Chand and Sons – New Delhi (1994).

4. Bajpat A.C.Cal I.M.and Fairdy J.A.Statistical methods for Engineering and Scientists – John Wiley and Sons.

FIRST ALLIED PAPER – II : OPERATIONS RESEARCH

UNIT – I

Basics of operation research (OR) : Characteristics of OR – Necessity or OR in industry – OR and decision making – role of computers in OR.Linear Programming : Formulations and graphical solution of (2 variables) canonical and standard terms of linear programming problem.

UNIT – II

Algebraic solution: simplex methods – charnes method of penalties – two phase simplex method.

UNIT – III

Transportation Model: Definition – formulation and solution of transportation models – The row – minima, column-minima, matrix-minima and vogel's approximation methods. Assignment model: Definition of assignment model – comparision with transportation model – formulation and solution of assignment model.

UNIT – IV

Sequencing problem : Processing of n jobs through 2 machines – processing n jobs through 3 machines – processing 2 jobs through m machines.

GAME THEORY : Characteristics of games – maxima, minimax criteria of optimality – dominance property – algebraic and graphical method of solution of solving 2 x 2 games.

UNIT – V

Networks – Fulkerson's rule – measure of activity – PERT computation – CPM computation – resource scheduling.

NOTE : Equal weigtage may be given for all units in the syllabus.

REFERENCE BOOKS:

1. Hamdy A.Taha : Operation Research – An introduction 5th edition, PHI., New Delhi – 1996.
2. Ackoff, R.L. and Sasieni, M.W: Fundamentals of operation research, John wiley and sons, new york 1968.
3. Charnes A.Cooper W. and Hendersen A : introduction to linear programming, john wiley and sons, new york 1953.
4. Srinath l.s.: PERT and CPM Principles and applications, affiliated east press pvt. Ltd., new york 1973.
5. Kanti swarup, p.k. gupta & manmohan – operation research 1996.
6. S.Kalavathy: Operations Research – Second Edition – Vikas Publishing House Pvt. Ltd., 2

Major Paper III

Relational Database Management Systems

Unit I

The Evolution of Database systems – Architecture of a DBMS – the Future of Database Systems.

Unit II

Database Models – The Relational Data Model – Basics of the Relational model – E-R-Diagrams to Relational designs Functional Dependencies – Definition of Functional Dependency – Keys of Relations – Relations – Super Keys – Discovering keys for Relations – Rules About Functional Dependencies.

Unit III

Design of Relational Database – anomalies – Decomposing Relations – Boyce-Codd Normal Form – Decomposition into BCNF – projecting Functional Dependencies – Third Normal Form – Multi valued Dependencies – Definition of Multi valued Dependencies – Fourth Normal Form – Decomposition into Fourth Normal Form – Relationship Among Normal Forms.

Unit IV

Operations in the Relational Model – Set Operations of Relations – Projection – Selection – Cartesian Product – Natural joins – Intersection – Union – Differences – Product – Joins. Constraints on Relational – Referential Integrity Constraints – Other Extension to the Relations Model.

Unit V

Database Language SQL – Simple Queries in SQL – Queries involving more than one Relation – Sub Queries – Duplicates – aggregation – Database modification – Defining a Relation Scheme in SQL – View Definition – Constraints in SQL – Keys in SQL – Referential Integrity and Foreign Keys. Systems Aspects of SQL – SQL in Programming Environment – Security and User Authorization in SQL2.

Text Book :

A First course in Database Systems – Jeffrey D. Ullman and Jennifer Widom – Addison Wesley Longman Pte. Ltd., Delhi – 2001.

Reference Books :

1. Fundamentals of Database Systems – Thrid Edition – Ramez Elmasri – Shamkant B. Navathe – Addison Wesley Longman Pte. Ltc – Delhi 2001.

2. Database Management Systems – Alexis leon and Mathews Leon – Vikas Publishing House Pvt. Ltd – New Delhi – 2002.

Second Allied Paper – I – Financial Accounting

Unit I

Meaning of accounting – meaning and objects of Book Keeping – accounting – concepts and conventions – Principles of double entry – kinds of accounts – journal and ledge accounts.

Unit II

Subsidiary books – purchase book, sales book, purchase returns book, bills receivable book, bills payable book, cash book, Analytical petty cash book and journal proper – bank reconciliation statement.

Unit III

Trial balance – preparation – errors disclosed and Errors not disclosed by its suspense account – rectification of errors.

Unit IV

Preparation of final accounts – trading account, profit and loss account, balance sheet – adjusting and closing entries.

Methods of Depreciation (Fixed Percentage on Original Cost Method and Diminishing Balance Method only).

Unit V

Bills of exchange – bill transaction, discounting endorsement – sending bill for collection, noting of a bill, renewal of a bill – insolvency of acceptor.

Text

"Principles of accountancy, by N. Vinayakam, P.L. Mani, K.L. Nagarajan, EURASIA Publishing House (PVT) ltd. Ram Nagar, New Delhi 110 055.

Reference:

"Advanced Accountancy" by Jain & Narang, KALYANI Publishers, New Delhi.

Practical – III

FINANCIAL ACCOUNTING USING DBMS PACKAGE

(FOXPRO OR EQUIVALENT PACKAGE)

1. Journalising, Ledger posting
2. Preparation of Trial Balance
3. Preparation of Balance Sheet
4. Preparation of cash Book
5. Preparation of Petty cash book
6. Reconciliation of Statement

Major Paper – IV

Operating Systems

Unit I

Evolution of Operating System – Types of Operating System – Different views of Operating System – Design and Implementation of Operating Systems – I/O Programming concepts – Interrupts Structure & Processing.

Unit II

Memory Management : Single Contiguous Allocation – Partitioned Allocation – Relocatable Partitioned Allocation – Paged and Demand – paged Memory Management – Segmented Memory Management – Segmented and Demand – Paged memory Management – Swapping and overlay techniques.

Unit III

Process Management : Job scheduling – process scheduling – Functions and policies – Evaluation of Round Robin Multiprogramming performance – Process Synchronization – Race conditions – Synchronization Mechanism – Deadly Embrace, prevention, Avoidance and Detection and Recovery methods.

Unit IV

Device Management : Techniques for Device Management – Device Characteristics – I/O Traffic Controller, I/O Scheduler, I/O Device Handlers – Virtual Devices – Spooling.

Unit V

File Management : A simple File System – General Model of a File System Physical File Systems – Logical File Systems.

Case Studies : DOS, UNIX/LINUX Operating Systems.

Text Book :

Operating Systems by Stuart E. Madnick and John J. Donovan – Tata McGraw Hill Publishing Company Ltd.

Reference Books :

1. Operating Systems – Concepts and Design by Milan Milenkovic - McGraw Hill Publishing Company Ltd.
2. Operating Systems by Achyut S. Godbole, Tata McGraw Hill Publishing Company Ltd – 1996.

Second Allied Paper – II

DIGITAL CIRCUITS AND DESIGN

Unit I

Number Systems : Decimal System – Counting in the Binary System – Binary Addition and Subtraction – Binary Multiplication and Division – Converting Decimal Numbers to Binary – Use of Complements to Represent Negative Numbers – Binary Number complements – Binary – Coded – Decimal Number Representation – Octal and Hexadecimal Number Systems.

Unit II

Boolean Algebra and Gate Networks : Fundamental Concepts of Boolean Algebra – AND Gates and OR Gates – Complementation and Inverters – Evaluation of Logical Expressions – Basic Laws of Boolean Algebra – De Morgan's Theorems – Sum of Products and Product of Sums – Derivation of Product – of – Sums Expressions – Derivation of Three – Input – Variable Expression – NAND Gates and NOR Gates – The Map Method for Simplifying Expressions – Sub – cubes and covering.

Unit III

Logic Design : Flip-Flops – Clocks – Flip-Flop Designs – Gated Flip-Flop – Master – Slave Flip-Flop – Shift Register – Binary Counter – BCD Counters – Integrated Circuits – medium, Large, and very Large Scale Integration.

Unit IV

The Arithmetic and Logic Unit : Construction of ALU – Binary Half – Adder – A Parallel Binary Adder – Addition and Subtraction in a Parallel Arithmetic Element – Full-Adder Designs – Binary – Coded – Decimal Adder – Addition and Subtraction in the 9s Complement System – Multiplexers.

Unit V

The Memory Element :

Random – Access Memories – Decoders – Connecting Memory Chips to a Computer Bus – Random – Access Semiconductor Memories – Static Random – Access Memories – Dynamic Random – Access Memories – Read – Only Memories – Magnetic Disk Memories – Flexible – Disk Storage Systems – The floppy Disk – Magnetic Bubble and CCD Memories.

Text Book :

"Digital Computer Fundamentals" by Thomas C. Bartee – Sixth Edition (TMH) 1991. (Chapters : 2, 3, 4, 5 & 6 only)

Reference Books:

1. Computer Fundamentals (Architecture and Organization) by B. Ram – Third Edition (New Age International Pvt. Ltd. Publishers)
2. Digital Principles and Applications by Albert Paul Malvino and Donald P. Leach – Fourth Edition (TMH) 1991.

Practical IV – PC PACKAGES LAB

MS-WORD

a) Text Manipulation
Change the font size and type
Aligning and justification of text
Underlining the text
Indenting the text
   a. Prepare a Bio-data
   b. Prepare a letter

b) Usages of Numbering, Bullets, Footer and Headers
Usage of spell check and find and replace
   i) Prepare a document in newspaper format
   ii) Prepare a document with bullets, footers and Headers

c) Tables and manipulation
Creation, Insertion, Deletion (columns & Rows) and usage of Auto format.
   i) Create a calendar and Auto format it
   ii) Create a mark sheet using table and find out the total marks.

d) Picture insertion and alignment
Prepare a greeting card

e) Creation of documents using templates
Creation of templates.
   i) Prepare a letter using various kings of templates
   ii) Prepare a biodata using various kinds of templates

f) Mail Merge Concepts
Prepare an invitation to be sent to specific addresses, in the data source.

MS-EXCEL

Cell Editing

   a. Usage of formulae and Built - in – Functions
   b. Describe the types of functions
   c. File Manipulations
   d. Data sorting – Ascending and Descending (both numbers and alphabets)

e. Worksheet preparation
f. Marklist Preparation for a student
g. Individual Pay Bill Preparation
h. Electricity Bill Preparation
i. Inventory Report Preparation
j. Invoice Report Preparation
k. Drawing Graphs

MS-POWERPOINT

a) Inserting Clip and Pictures

Frame movements of the above

i) Create a slide show presentation for a seminar (choose your own topic)

a. Enter the text in outline view
b. Create Non-Bulleted and Bulleted body text
c. Apply the appropriate Text attributes

b) Insertion of New Slides

Preparation of Organization Charts

i) Create a slide show presentation for an invitation

a. Insert an object from a Bitmap file
b. Enter the text in the slide view
c. Apply appropriate text attributes
d. Rotate the object to 45 degree (approximately)
e. Apply shadow to the object.

c) Presentation using wizards

Usage of design templates

i) Create a slide show presentation to display percentage of marks in each semester for all students

a. Use bar chart (x-axis : semester, y-axis:% marks)
b. Use different presentation template and different transition effect for each slide.
c. Use different text attributes in each slide.

Major Paper V : Visual Programming

Unit I

Introduction to Visual Basic – Integrated Development Environment (IDE) features – VB editor – customizing the IDE – anatomy of a form working with form properties – setting form's properties – introducing form events and form methods.

Unit II

Variables in Visual Basic : Declaring variables – Data types – Null value, Error value – Empty value – the scope of a variable – Module level variables – Constants – Creating your own constants – Scope of a constant – converting data types – Arrays – Declaring arrays – Fixed size arrays – Dynamic arrays – Preserve keyword – ReDim. Writing Code in Visual Basic – The anatomy of a procedure – Subroutine and functions – Language constructs – For…..Next, The While loop, Select case…..End select, Exit statement, With structure.

Unit III

Selecting and Using controls – Introduction to standard controls – command buttons – Text boxes – labels – Option buttons – Check boxes – Frame controls – List boxes – Combo boxes – Image objects – Picture boxes – Timer – Scroll bars – File system controls (Drive, DirList, File List boxes).

Unit IV

Introduction to Built-in ActiveX control – Tool bar – The Treeview control – The Listview control – the Imagelist control – Common Dialog Control – Status bar control – Rich textbox control – Menu editor.

Unit V

DDE properties – DDE Methods – OLE properties – Active Control Creation and Usage and ActiveX DLL creation and usage – Database access – Data Control – Field control – Data grid record set using SQL to manipulate data – Open Data Base Connectivity.

Text Books :

1. Mohammed Azam, Programming with Visual Basic 6.0 – Vikas Publishing House Pvt.Ltd - 2002.
2. Content Development Group, Visual Basic 6.0 – Tata McGraw Hill Publishing Company Limited – 2002.

Major Paper VI : Data Communications and Networks

Unit I

Data Communication – Networks – Protocols and Standard – Line configuration – Topology – Transmission Mode – Categories of networks – Internet works.

Unit II

The OSI Model – Functions of the layers – TCP/IP Protocols suite – Signals – Analog and Digital Signal – Data Transmission – Data Terminal Equipment – Data Circuit Terminals equipment – Modems.

Unit III

Transmission of Media – Guided Media – Unguided Media – Transmission Impairments – Media Comparision – Multiplexing – FDM – TDM – WDM. Error Detection and Correction – Types of errors – Detection – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cyclic Redundancy Check (CRC). Check Sum – Error Correction.

Unit IV

Switching – Circuit Switching – Packet Switching – Message Switching Networking and Internetworking Devices – Repeaters – Bridges – Routers – Gateways. Routing Algorithm – Distance Vector Routing – Link State Routing – Data Link Control – Discipline – Flow Control.

Unit V

Internet working : TCP/IP Protocol Suite – Client Server Model – Domain Name System – File Transfer Protocol (FTP) – Simple Mail Transfer Protocol (SMTP) – World Wide Web (WWW) – Hyper Text Transfer Protocol (HTTP).

Text Book :

"Data Communications and Networks" – Behrouz A.Forouzan Second Edition, Tata McGraw Hill Edition.

Reference Book :

1. "Introduction to Networking" – Barry Nance, Fourth Indian Eastern Economy Edition.
2. "Computer Networks" – Andrew S. Tanenbaum 4th Edition Eastern Economy Edition, 2003.

Major Paper VII : Object - Oriented System Analysis and Design

Unit I

Introduction to object-oriented Development – Object Oriented themes – Modeling – The object modeling Technique – Objects and classes Links and Associations Concepts – Generalization and inheritance – Grouping constructs.

Unit II

Advanced Object Modeling – Aggregation – Abstract Classes – Extension and Restriction – Multiple Inheritance – Metadata – Candidate Keys – Constraints. Dynamic Modeling : - Events and States – Operations – Nested State diagram – Concurrency. Functional Modeling – Functional models – Data Flow Diagram – Specifying operations – Constraints.

Unit III

OMT as a software Engineering Methodology – The OMT Methodology – Impact of an Object Oriented Approach. Analysis : - Overview of Analysis – Problem Statement – Automated Teller Machine example – Object modeling – Dynamic modeling – Functional Modeling – Adding Operations Iterating the Analysis.

Unit IV

System Design – Overview of System Design – Breaking a System into Subsystem – Identifying Concurrency – Allocating Subsystems to processors and tasks – Management of data stores – Handling Boundary Conditions – Common Architectural Frame works – Architecture of the ATM system. Object Design – Overview of Object Design – Combining the three models – Designing Algorithms – Design Optimization – Implementation of control.

Unit V

Implementation using a programming language – Implementation Using a Database System. Programming style : Object – Style – Reusability – Extensibility – Robustness – Object Oriented Language Features – Survey of Object – Oriented Languages.

Text Book :

Object Oriented Modeling and Design – James Rumbaugh, Michel Blaha, William Premerlani – PHI Twelfth Printing – 2001.

Reference Book :

Object Oriented Analysis and Design with Applications – Grady Booch Second Edition – Pearson Education Asia Publications.

Major Paper VIII : E-Commerce and its applications.

Unit I

Welcome to Electronic Commerce – Electronic Commerce – Type of Electronic Commerce solutions – electronic data interchange – Major Projects in electronic communication – Electronic payments – Applications.

Unit II

Electronic Communication – Data Communication – Forms of data communication – Data Transmission techniques – Types of communication channels – Methods of data transmission – Transmission modes – Introduction to FDM, TDM, ISDN and ATM – Definition for LAN, MAN and WAN – An introduction to Network topology – Private, Valued added, Public, Circuit switching and packet switching networks.

Unit III

TCP / IP and Network Security – Introduction – Architecture of TCP / IP – Applications of TCP / IP – Security.

Unit IV

Technologies of Electronic Commerce – Introduction – electronic Data Interchange – Uses – Evolution of EDI – Benefits of EDI – Understanding EDI Works – Introduction to EDIFACT. EDIFACT and software – The PEDI Protocol – EDI and X.400 – Business features of EDI – EDI administration – EDI security – Security mechanisms.

Unit V

Reengineering for Electronic Commerce – An Introduction to Enterprise Resource planning – Evolution and characteristics of ERP – Features of ERP – Components of ERP – ERP Vendors – Business Process Reengineering – The future of ERP system – Information technology plan for ERP system.

Text Book :

Doing Business on the Internet E-Commerce, by S.Jaiswal, first edition 2000, Galgotia Publications.

Reference Books :

1. Electronic Commerce, by Gary O.Schneider James T.Perry, First edition 2000, Thomson Learning.
2. Electronic Commerce by Elias M.Awad, Prentice Hall of India 2002.

Practical V : Visual Programming Lab

1. Simple exercises using standard controls
2. Write a program to design a calendar of any year
3. Write a program to scroll a text from left to right and right to left of the client area.
4. Write a code to design and implement a scientific calculator
5. Write a program to expand and shrinking an object – while program is running
6. Write a program to create animation by using move method and a timer Object
7. Write a program for preparing students mark list
8. Write a program to populate the table entities using data bound control
9. Write a program to expand and shrink object using timer control and move method.

Major Paper IX : Multimedia and its Applications

Unit I

Introduction to Multimedia – CDROM and the Multimedia highway – Use of Multimedia – Introduction to making multimedia – Multimedia skills.

Unit II

Multimedia hardware and software – Maintosh and windows production platforms – Connections – Memory and storage devices – Input devices – Output devices – Communication devices – Basic software tools – Text editing and word processing tools – Painting and drawing tools – 3-D modeling and animation tools – Image editing tools – sound editing tools – Animation, video and digital movie tools – Making instant multimedia – Multimedia authoring tools.

Unit III

Multimedia Building Blocks – Text – Fonts and Faces – Using Text in Multimedia – Computers and Text – Font Editing and Design Tools – Hypermedia and Hypertext – Sound – Multimedia System Sounds – MIDI Versus Digital Audio – Digital Audio – Making MIDI Audio – Audio File Formats – Images – Making Still Images – Color – Image File Formats – Animation – Principal of Animation – Making Animations That Work – Video – How Video Works – Integrating Video – Video – Video Tips – Recording Formats – Digital Video.

Unit IV

Multimedia and the Internet – The Internet and How it Works – Internetworking – Connections – Internet Services – The World Wide Web and HTML – Dynamic Web Pages – Multimedia on the Web – Tools for the World Wide Web – Web Services – Web Browsers – Plug-ins and Delivery Vehicles – Designing for the World Wide Web – Working on the Web – Text for the Web – Images for the Web – Sound for the Web – Animation for the Web.

Unit V

Assembling and Delivering a Project – Planning and Costing – Project Planning – Estimating – Designing and Producing – Content and Talent – Using Content Created by others – Using Content Created for a Project – Delivering – Testing – Preparing for Delivery – Delivering on CD – ROM – Delivering on World Wide Web.

Text Book :

Multimedia Making It Work – Fifth Edition – Tay Vaughan – Tata McGraw Hill Edition 2001.

Reference Books :

1. Multimedia In Action – James E.Shuman – Vikas Publishing House
2. Multimedia An Introduction – John Villamil – Casanova, Louis Moliva, PHI.

Major Paper X : ASP Programming

Unit I

Introduction to ASP – Active Server Pages Model – ASP File – the process of serving an Active Server Page – Using Scripting Languages – Setting the Primary Scripting Language – Including other files – Understanding objects.

Unit II

Understanding components – Working with users – working with HTML forms – retrieving form data – using text boxes and text areas.

Unit III

Cookies – working with cookies – applications of cookies – addressing the drawbacks of using cookies – using cookies in ASP applications. Working with connections and data sources – creating connections with OLEdb and ODBC – connecting to Microsoft SQL server – connecting to a Microsoft access database.

Unit IV

About the connection object – executing a SQL statement with the connection object – understanding session and connection pooling – working with record sets – retrieving a record set – record set cursor and locking types – understanding ADO cursors – paging through a record set.

Unit V

Working with the command object – creating stored procedures – executing stored procedures with the connection object – executing stored procedures with the command object – retrieving parameter information.

Text Books :

1. Practical ASP – Ivan Bayross, BPB Publications, 2000
2. Special Edition Using Active Server Pages – Scot Johnson, Prentice Hall of India Private Limited 2001.

Major Paper XI : Artificial Intelligence

Unit I

Artificial Intelligence definitions – AI techniques – AI applications – Problems – Problem space and search – Defining the problem as a state space search – Production systems – Problem characteristics.

Unit II

Heuristic search – Generate and test – Hill climbing – Breadth first search – Best first search – Problem reduction – Constraint Satisfaction – Means ends analysis.

Unit III

Game playing – Minimax search – Adding alpha – beta cutoffs – Predicate logic – Representing simple facts and logic computable functions and predicates – Resolution – Natural deduction.

Unit IV

Representing knowledge using rules – Procedural versus declarative knowledge – Forward versus backward reasoning – Non-monotonic reasoning.

Text Books :

1. Artificial Intelligence by Elaine Rich and Kevin Knight, Tata McGraw Hill, Second Edition.
2. Principles of Artificial Intelligence and Expert Systems development by David Rolston, McGraw Hill.
3. Artificial Intelligence and Expert Systems by K.Meena and R.Dhanapal, International books, 2000.

Practical VI : ASP Programming Lab

1. Create an ASP file to display the message “Have a Good Weekend” if it is a Saturday otherwise “Hand in there, the week will get better”.
2. Write an ASP program to get the name and favorite ice cream flavor. Respond with the price of the corresponding ice cream.
3. Create a login form, to expire, if the user does not type the password within 100 seconds.
4. Create and advertisement for a bookshop using Ad Rotator component.
5. Create a course registration form with name, address and list of available course. Reply with the corresponding course fees on selection of a single course or a collection of courses.
6. Write an ASP program to manipulate cookies with the information between HTTP sessions such as

    i. Last Date visited
    ii. Last Time visited
    iii. Number of visits

7. Create a student database and manipulate the records using the connection object in ASP.
8. Create an employee database and manipulate the records using command object in ASP.

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