BCA(BACHELOR OF COMPUTER APPLICATION)

THIRD SEMESTER SYLLABUS

BCA0301   Mathematics   **L T P**

                                                                                                                   4 0 0

UNIT-I

Order, degree, solution and formation of a differential equation. Standard techniques of solving linear differential equations with constant coefficients, Cauchy's and Legendres.

UNIT-II

Complex numbers and their representation in a plane. Argand diagram, algebra of complex numbers, modulus and arguments of a complex number, square root of a complex number and cube roots of unity, triangle inequality, De-Moivre's theorem, roots of complex numbers.

 UNIT-III

Primes, Primarily testing, Factorization, Chinese Remainder Theorem, Quadratic congruence, Exponentiation and Algorithm

UNIT-IV

Finite fields, GF(p) fields, GF(pn) fields, Polynomials and their operations over GF(2) and GF(2n)

Text & Reference Books:

1. Dummit, D. and Foote, R. Abstract Algebra. Hoboken, NJ: John Wiley & Sons, 2004. 2. Durbin, J. Modern Algebra, Hoboken, NJ: John Wiley & Sons, 2005. 3. Shepley L. Ross, "Differential Equations", John Wilay & Sons. 4. B.S. Grewal, "Higher Engineering Mathematics", Khanna Publisher. 5. J.P. Tremblay and R. Manohar, "Discrete Mathematical structures with applications to Computer Science", Tata McGraw Hill.   Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0302   Business Practice and Management   **L T P**

`   **4 0 0**

UNIT-I

Concepts of Business: Commerce and Industry, Business Environment, Macro and Micro Environment, Business System, Forms of Business Organization.

UNIT-II

Management: Meaning, definition and importance, Management concept, functions, Principles of management and Management Process.

UNIT-III

Planning: concepts and its types, Decision making concept, Management by objectives (M.B.O.). Motivation0Concepts and theories, Leadership0 Concepts and styles.

UNIT-IV

Organizing: Concepts, Nature and Significance, Authority and responsibility, Centralization and Decentralization, Communication0 Nature, Process and types of communication networks. Managerial control 0 concepts and Process, Techniques of control.

Text & Reference Books:

1. Sharma Sudhir and Bansal, "Principles of Management", Anamika Publishers. 2. Sharma, R. K. and Gupta, S. K., "Business Organisation and Management", Kalyani Publishers. 3. Sharma, N. K., "Current issues in Management", Indus Valley Publication. 4. Singh, U.K. and Dewan J.M., "Business Management", Management Executives Handbook Series. 5. Michael A. Hitt, Black, J. Stewart, "Management", Pearson Education.   Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0303   Computer Organization   **L T P**

                                                                        4 0 0

UNIT 1

Data representation: number systems, decimal to binary, octal and hexadecimal conversion and vice versa, binary coded decimal numbers, hamming code for error detection, alphanumeric codes, arithmetic operations, binary addition and subtraction, addition/subtraction of numbers in 1's and 2's complement notation for binary numbers and 9's and 10's complement notation for decimal numbers, binary multiplication and division, BCD arithmetic, floating point addition and subtraction.

UNIT II

Register Transfer Language: Register transfer, Bus and Memory transfer (three-stage bus buffers, memory transfer), arithmetic microoperations (Binary Adder, Binary-adder-Substractor, binary incrementer, arithmetic circuit), Logic micro-operation (list op logic micro0operations, hardware implementation), shift micro0operations (hardware implementation), arithmetic logic shift unit.

UNIT III

Instruction codes: (stored program organization, indirect address), computer registers (common bus register), computer instructions (instruction set completeness), timing and control, instruction cycle (fetch and decode, types of instruction, register-reference instructions), Micro programmed control, control memory, addressing sequencing (conditional branching, mapping of instructions, subroutine)

UNIT IV

Central Processing Unit: Introduction, general register organization (control word, examples of micro-operations), stack organization (register stack, memory stack, reverse polish notation, evaluation of arithmetic expressions), instruction formats (three-address instructions, two address instructions, one0address instructions), addressing modes, data transfer and manipulation (data transfer instructions, data manipulation instructions, arithmetic instructions, logical and bit manipulation instructions, shift instructions), Program control (status bit conditions, conditional branch instructions, program interrupt, types of interrupt).

Text and reference books:

1. M.Morris Mano, "Computer System Architecture" 3rd edition, PHI. 2. V. Rajaraman, T. Radhakrishanan, "An Introduction to Digital Design", PHI 3. J.P.Hays, "Computer Organization and Architecture", McGraw Hill. Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0304	Object Oriented Programming with C++	L T P
		4 0 3

UNIT-I

Object oriented programming: Need for OOP, object oriented approach, characteristics of OOP language- objects, classes, Inheritance, Reusability, Polymorphism, overloading advantage of OOP, relationship between C and C++. Programming Basic: Basic program construction, output using cout, preprocessor directive, comments, integer variables, character variables, input with cin, Type bool, setw Manipulator, type float, type conversion, arithmetic operators, relational operators, logical operators.

UNIT-II

Loops and decision control statements: loop- for, while, do, decision-if, if- else, switch, conditional operator, other control statements- break, continue, goto. Structures and functions: structures, Accessing structure members, structure within a structure, Enumerated Data type, simple functions,

passing arguments to functions, Returning values from functions, reference arguments, overloaded functions, storage classes, scope resolution operator.

UNIT-III

Objects and classes: A simple class, classes and objects, specifying a class, using a class, C++ objects as physical objects, C++ objects as data types, Constructors, objects as function arguments, returning objects from functions. Arrays: Array fundamental0defining array, array elements, Accessing array elements, Initializing arrays, multidimensional arrays, passing arrays to functions, array of objects, strings-string variables, Avoiding Buffer overflow, string constants, array of strings string as class members, Standard C++ string Class.

UNIT-IV

Operator overloading: Overloading unary operators- the operator keyword, operator arguments, operator return values nameless temporary objects, limitation of increment operators, overloading Binary operators, data conversion, Pitfalls of operator overloading and conversion. Inheritance: Derived class and base class, specifying the derived class, accessing base class, members, derived class constructors, overriding member functions, class hierarchies, public and private Inheritance, levels of inheritance, multiple inheritance, Ambiguity in Multiple Inheritance, Aggregation- Classes Within Classes.

Text & Reference Books:

1. Robert Lafore, "Object-Oriented Programming in C++", Galgotia Publications. 2. B. Chandra, "Object-Oriented Programming using C++", Narosa Publications.   Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0305   Desktop Publishing and Designing   **L T P**

                                                                              4 0 3

UNIT-I

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

Page Layout: Different page format / Layouts, News paper page format, Page orientations, Columns & Gutters, Printing in reduced sizes. Page Maker: Introductions To 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 short0cut commands, Spell check, Find & Replace, Import Export etc., F

onts, Points Sizes, Spacing etc., Installing Printers, Scaling (Percentages), Printer setup.

UNIT-III

Use Of D.T.P: Use of D.T.P. in Advertisements, Books & Magazines, News Paper, Table Editor. Adobe Photoshop: Introduction to Photoshop & Flash, Documents, Various Graphic Files

UNIT-IV

Extensions Vector Image and Raster Images, Various Colour Modes and Models. Introduction to Screen and Work Area, Photoshop Tools & Palettes ,Use of Layers & Filters Working with Images.

Text & Reference Books:

1. Page maker 4.0 & 5.0 by b.p.o. publications. 2. Prakhar complete course for dtp (coreldraw, pagemaker, photoshop) Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

FOURTH SEMSESTER SYLLABUS

BCA0401 Personnel Management **L T P**

4 0 0

UNIT-I

Introduction to Personnel Management : Nature, Scope, functions and significance, Personnel Policies, classification and organization of Personnel Department.

 UNIT-II

Human Resource Planning: Meaning, objectives and importance of HRM, Job Analysis and Design, Recruitment, selection, Terms of Employment, Induction and Briefing, Orientation and Placement.

UNIT-III

Human resources Development: Training and Development and Promotion and incentives, retirement benefits.

 UNIT-IV

Performance Appraisal and Job Evaluation, Employee remuneration and various incentive plans.

Text & Reference Books:

1. Ashwathappa, K, "Human Resource and Personnel Management", Tata McGraw Hill. 2. De Cenzo, D. A. Robbins. S, "Personnel and Human Resource Management", Prentice Hall of India. 3. Mamoria, C.B., "Personnel Management", Himalaya Publishing House. 4. Deardwell, Ian, "Human Resource Management", Prentice Hall India. 5. Grobler, P. A., "Human Resource Management", Anamika Publishers.   Note: In each theory paper, nine questions are to be set. Two questions are to set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0402   Accounting   **L T P**

                                                                         4 0 0

UNIT-I

Accounting : Meaning, Definition and objects of Accounting, Accounting Principles, Accounting concepts and Conventions, Principle of Double Entry System, Journal Entry, Ledger, Cash Book and Subsidiary books, Trial Balance and rectification of errors.

 UNIT-II

Final Account: Manufacturing Account, Trading Account, Profit and Loss Account and Balance Sheet.

UNIT-III

Cost Accounting: Nature and scope of Cost Accounting, Cost Concept and classification, Cost Sheet, Marginal Costing (BEP and Cost Volume Profit analysis).

 UNIT-IV

Management Accounting: Meaning, importance and Scope of Management Accounting Brief introduction to the tools of financial statements, Analysis (Ratio, Fund Flow and Cash Flow Analysis).

Text & Reference Books:

1. Maheswari, S. N., "Fundamental Accounting", Vikas Publishing House. 2. Anthony, R.H. and Roece, J. S., "Accounting Principles", Homewood Illinois. 3. Hongren, Charles J. and Faster, "Cost Accounting: A managerial Emphasis", Prentice Hall International. 4. Gupta, R. L., "Advanced Financial Accounting", Sultan Chand and Company. 5. Pandey, I. M., "Management Accounting", Vikas Publishing House. 6. A.T. Kinson, "Management Accounting", Pearson Education.   Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0403   System Analysis and Design   **L T P**

4 0 0

UNIT -I

Overview of System Analysis and Design: Business System concepts, System development life cycle, Project Selection, Feasibility Analysis, Design, Limitation, testing and evaluation. Initial Investigation: Sources of Requests, User / Analyst interaction, Qualities of a System Analyst.

UNIT –II

Feasibility studies: Technical, Operational, Behavioral and economic feasibilities, cost and benefit analysis.

UNIT –III

System requirement specification and analysis: Fact finding techniques, Data Flow Diagrams, Data Dictionaries, process organization and interaction, Decision Analysis, Decision Trees and Tables. Top down and bottom up variance, Audit trails.

UNIT –IV

Detail Design: Modularization, module specification, file design, system development involving databases. System control and quality assurance: Design objectives reliability and maintenance, software design and documentation tools, unit and integration testing, testing practice and plans, system control.

Text & Reference Books:

1. Awad, "System Analysis Design", Galgotia Publishing, Delhi. 2. Jamas, A.S., "Analysis and design of information systems", Mc Graw Hill. 3. Luteberg, M.,Golkuhl, G and Hilsson, A, "Information System Development a Systematic Approach", PHI. 4. Leeson N., "System Analysis and Design", Science Research Associates, 1985. 5. Samprive, P.C., "System analysis: Definition Process and Design".
Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0404   Internet Technology & Web Page Design   **L T P**

4 0 3

UNIT-

I Internet: Evolution of Internet, Internet Application, Network requirements, Bandwidth, Internet features (Electronic Mail, Newsgroups, FTP Archive, Real Time Activity, Video, Audio, Search Engine).

UNIT–II

World Wide Web: Definition, WWW Browsers, WWW Servers, Dial-Up SLIP, PPP Access, Dedicated line, ISDN.TCP/IP Connectivity- DNS Servers, Domain Names Registration process, IP addressing, Routing with TCP/IP Basics

UNIT-III

HTML: Text formatting, Data, Tables, Table layout, Images, HTML Interactivity, URLs, HTTP, NNTP, Hyperlinks, Menus & Image Maps, HTML Form, Embedded objects in HTML, Web Typography, Approaching Web Typography, Graphics and Type, Families and Faces, Type forms, Color and Type, Adding Graphics, Adding Graphics with the Image Element, Using images as links, Creating Image Maps, Working with Image Files, Layout Technology, Standard HTML Formatting, Tables, Frames,

UNIT-IV

CSS: Formatting your site with Cascading Style Sheets, Seeing Style Sheets in Action, Understanding CSSI's Advantages and Limitations, Making HTML and CSSI's, Making HTML and CSSI work together, Learning How CSSI Works, Using CSSI Properties. XML, XML Language, SMGL, Linking in XML.

Text & Reference Books:

1. Internet Get Started: BPB Publications. 2. Loren Buhle, "Webmaster Professional Reference", New Riders Publishing. 3. Rick Darnell "HTML 4", Techmedia. 4. Tauber, "Mastering Front Page 2000" BPB. 5. James Jaworski, "Making Java Script and JSCRIPT", BPB Publications. 6. HTML Complete: BPB Publisher.   Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0405   Programming in Visual Basic   **L T P**

4 0 3

UNIT –I

Introduction to Visual Studio: Features of Visual basic, Visual Basic applications, compile, run, Difference between Visual Basic and .NET languages. Open, close existing project, possible menu variations, use the Form Designer, Code Editor, Solution Explorer, work with Visual Studio's windows. Design a form: Add controls to a form, Set properties, common properties for forms and controls, add navigation features, property settings, use Document Outline view, name and save files of a project, Design and property settings for the form, Refer to properties, methods, events, Add code to a form, create an event handler for the default event of a form or control, code with a readable style, code comments, detect and correct syntax errors. Use the toolbar buttons, collapse or expand code, print source code, code snippets, Smart Compile Auto Correction feature, My feature and debug a project.

UNIT –II

Work with numeric and string data: Work with the built-in value types- Declare and initialize variables, declare and initialize constants, code arithmetic expressions, code assignment statements, work with the order of precedence, use casting, change the type semantics, work with strings, declare and initialize a string, join and append strings. Data types, use Visual Basic functions to convert data types, use methods to convert data types, formatting functions, use methods to convert numbers to formatted strings, Code control structures: Code Boolean expressions, relational operators, logical operators, conditional statements, If statements, Select Case statements, loops, For loops, Do loops, use Exit and Continue statements, Debugging techniques for programs with loops.

UNIT –III

Code procedures and event handlers: Code and call procedures- Sub procedures, call Sub procedures, pass arguments by reference and by value, code and call Function procedures, work with events, start an event handler for any event, handle multiple events with one event handler, use the Code Editor to start an event handler, add and remove event writing. The Function procedure, event handlers, Message box Handle exceptions and validate data: Introduction to data validation and exception handling, use the IsNumeric function, display a dialog box for error messages, exception handling works, Use structured exception handling, catch an exception, properties and methods of an exception, throw an exception, application with exception handling. Validate data: Validate a single entry, use generic procedures to validate an entry, validate multiple entries, application with data validation, dialog boxes, code, Difference between Validating event and masked text box.

UNIT IV

Arrays and collections: one-dimensional arrays, create an array, assign values to the elements of an array, use For loops to work with arrays, use For Each loops to work with arrays, work with rectangular arrays, create a rectangular array, assign values to a rectangular array, work with rectangular arrays, create a jagged array, assign values to a jagged array, work with jagged arrays, use the Array class, refer to and copy arrays, code procedures that work with arrays, Work with list, sorted list, queues, stacks, array list. Dates and strings: create a DateTime value, get the current date & time, format DateTime values, perform operations on dates and times, work with strings, procedures for validating user entries, Format numbers, dates, and times, Format numbers. Types of controls, combo boxes, list boxes, check boxes, radio buttons, group boxes, use Tab Order view to set the tab order. Multi0form projects: Add a form to a project, rename a form, change the startup form for a project, display a form as a dialog box, pass data between a form and a custom dialog box, Use the MessageBox0 Display a dialog box and get the user response, use the FormClosing event. Debug an application: set the debugging options, break mode, use the Edit Continue feature, breakpoints, debugging windows, Locals window to monitor variables, use the Autos window to monitor variables, Watch windows to monitor expressions, Call Stack window to monitor called procedures, Output window to get build or debugging information.

Text & Reference Books:

1. Anne Boehm, Mike Murach and Associates "Murach's Visual Basic 2008", Publisher of Professional Programming. 2. Steven Holzner Visual Basic 6 programming, Black Book, Dream tech press Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.