SCHEME OF EXAMINATION 2018-2019

BCA PART- I

Subject Code	Subject Paper	Theory Marks		Internal Marks		Teaching Load per Week		
		Max. (A)	Min. (B)	Max. (C)	Min. (D)	L	T	P
BCA101	Discrete Mathematics	80	27	20	8	4	2	-
BCA102	Computer Fundamentals	80	27	20	8	4	2	-
BCA103	Programming in 'C' language	80	27	20	8	4	2	-
BCA104	PC Software and Multimedia	80	27	20	8	4	2	-
BCA105	Web Technology and E-Commerce	80	27	20	8	4	2	-
BCA106	Communication skills	80	27	20	8	4	2	-
BCA107	LAB I: Programming Lab in 'C'	100	50	40	16	-	-	3x2
BCA108	LAB II: PC Software Lab	100	50	40	16	-	-	2x2
BCA109	LAB III: Web Technology Lab	100	50	20	8	-	-	1x2
TOTAL		**780**	**312**	**220**	**88**			
GRAND TOTAL (PAPER + INTERNAL)		**1000** (A+C)		**400** (B+D)				

- *Student will have to pass individually in all theory, practical and sessional.*

BCA -101
Discrete Mathematics

Max Marks: 80   **Min Marks: 27**

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed no scientific calculator is allowed.

UNIT - I
Recall of statements and logical connectives, tautologies and contradictions, logical equivalence, algebra of propositions quantifiers, existential quantifiers and universal quantifiers.

UNIT – II
Boolean algebra and its properties, algebra of propositions as an example, De Morgan's Laws, partial order relations g.l.b., l.u.b. Algebra of electric circuits and its applications. Design of simple automatic control system.

UNIT - III
Boolean functions - disjunctive and conjugative normal forms. Boolean's expansion theorem, fundamental forms. Many terminal Networks.

UNIT – IV
Arbitrary Cartesian product of sets. Equivalence relations, partition of sets, injective, surjective, bijective maps, binary operations, countable, uncountable sets.

UNIT –V
Basic Concept of Graph Theory, Sub graphs, Trees and their properties, Binary Trees, Spanning Trees, Directed Trees, Planar graphs, Euler Circuit, Hamiltonian Graph. Chromatic number.

RECOMENDED BOOKS:
1. Boolean Algebra and its Application, J.E. Whitesitt, Courier Corporation.
2. Concepts of Modern Mathematics, P.L. Bhatnagar.
3. Discrete Mathematics, B.R.Thakur
4. Graph theory and its applications, Narsingh Deo, Dover publication.
5. A TextBook of Discrete Mathematics,Swapan Kumar Sarkar,S.chand.
6. Discrete Maths, C.L.Liu ,T M Hill.

BCA - 102
Computer Fundamentals

Max Marks: 80   **Min Marks: 27**

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Unit-I Introduction to Computers

Computer system: characteristics and capabilities. Computer Hardware and Software: Block Diagram of a Computer, Different Data Processing: Data, Data Processing System, Storing Data, Processing Data. Types of Computers: Analogue, Digital, Hybrid, General and Special Purpose Computers. Generations of Computers. Computer Systems: Micros, Minis & Main-frames. Limitations of Micro Computer. **Number systems**– Decimal Number system, Binary number system, Octal & Hexadecimal number system, 1's&2's complement **Codes-** ASCII, EBCDI Codes, Gray code & BCD. **Logic Gates** - AND, OR, NOT GATES and their Truth tables, NOR, NAND & XOR gates

Unit–II Computer Peripherals:

Introduction to Input Devices : Categorizing Input Hardware, Keyboard, Direct Entry – Card Readers, Scanning Devices – O.M.R., Character Readers, Thumb Scanner, MICR, Smart Cards, Voice Input Devices, Pointing Devices – Mouse, Light Pen, Touch Screen. **Computer Output** : Output Fundamentals, Hardcopy Output Devices, Impact Printers, Non-Impact Printers, Plotters, Computer output Microfilm/Microfiche(COM) systems, Softcopy Output Devices, Cathode Ray Tube, Flat Screen Technologies, Projectors, Speakers.

Unit–III Basic Components and Storage:

Central Processing Unit : The Microprocessor, control unit, A.L.U., Registers, Buses, Main Memory, Main Memory (RAM) for microcomputers, Read Only Memory(ROM). **Storage Devices** : Storage Fundamentals, Primary and Secondary Storage, Data Storage and Retrieval Methods – Sequential, Direct & Indexed Sequential, Tape Storage and Retrieval Methods Tape storage Devices, characteristics and limitations, Direct access Storage and Microcomputers - Hard Disks, Disk Cartridges, Direct Access Storage Devices for large Computer systems, Mass storage systems and Optical Disks, CD ROM.

Unit–IV Computer Software and Languages:

System Software: System software Vs. Application Software, Types of System Software, Introduction and Types of Operating Systems. Boot Loader, Diagnostic Programs, BIOS, Utility Programs. **Application Software**: Microcomputer Software, Interacting with the System, Trends in PC software, Types of Application Software, Difference between Program and Packages. **Computer Languages**: Definition, Generations of computer languages, Types of Languages, Language Processors: Assembler, Interpreter, Compiler, Linker and Loader. Programming constructs, Algorithm & flowchart.

Unit–V Introduction to MS DOS and Windows

Introduction to DOS: history and versions of DOS. Fundamentals of DOS: Physical Structure of the Disk, Compatibility of drives, Disks & DOS versions, Preparing Disks for use, Device Names. Getting Started with DOS: Booting Process (DOS, Windows, Unix), System Files and Command.com, Internal DOS Files & Directories, Elementary External DOS Commands, Creating a Batch Files, Additional Commands.

Microsoft Windows: Operating system-Definition &functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders. Control panel–display properties, adding and removing software and hardware, setting date and time, screen saver and appearance. Using windows accessories, Overview of LINUX/UNIX.

RECOMENDED BOOKS:

1.   Introduction to Information Technology, V. Rajaraman, PHI, Second Edition.
2.   Computer Fundamentals, P. K. Sinha, BPB Publications, Sixth Edition.
3.   Fundamental of Information Technology: Chetan Shrivastava_Kalyani Publishers
4.   Computers Today: Suresh K Basandra, Galgotia Publicat

Max Marks: 80   **Min Marks: 27**

NOTE :-The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

UNIT-I Fundamental of C

Overview of C : History of 'C', Structure of 'C' program. Keywords, Tokens, Data types, Constants, Literals and Variables, Operators and Expressions : Arithmetic operators, Relational operator, Logical operators, Expressions, Operator : operator precedence and associativity ,Type casting, Console I/O formatting, Unformatted I/O functions: getch(), getchar, getche(), getc(), putc(), putchar().

UNIT- II Control Constructs

If-else, conditional operators, switch and break, nested conditional branching statements, loops: do…while, while, for, Nested loops, break and continue, goto and label, exit function.
Functions: definition, function components: Function arguments, return value, function call statement, function prototype. Types of function; Scope and lifetime of variables. Call by value and call by reference. Function using arrays, function with command line argument, User defined function: maths and character functions, recursive function.

UNIT-III Array, String Union and Structure

Array: Array declaration, One and Two dimensional numeric and character arrays. Multidimensional arrays.
String: String declaration, initialization, string manipulation with/without using library function.
Structure, Union and Enum- Structure: basics, declaring structure and structure variable, typedef statement, array of structure, array within structure, Nested structure; passing structure to function, function returning structure. **Union**: basics, declaring union and union variable, **Enum**: declaring enum and enum variable.

UNIT- IV Pointer

Definition of pointer, pointer declaration, using & and * operators. Void pointer, pointer to pointer, Pointer in math expression, pointer arithmetic, pointer comparison, dynamic memory allocation functions – malloc, calloc, realloc and free, pointer vs. Array, Array of pointer, pointer to array, pointers to function, function returning pointer, passing function as argument to function, pointer to structure, dynamic array of structure through pointer to structure.

UNIT-V File Handling and Preprocessor

File handling: file pointer, file accessing functions: fopen, fclose, fputc, fgetc, fprintf, fscanf, fread, fwrite,beof, fflush, rewind, fseek, ferror. File handling through command line argument.
Introduction to the Preprocessor: #include, #define, conditional compilation directives: #if, #else, #elif, #endif, #ifndef etc.

RECOMENDED BOOKS:

1. Programming in ANSI C, E Balagurusamy, Tata McGraw-Hill, Third Edition.
2. Let Us C, YashwantKanetkar, Infinity Science Press, Eighth Edition.
3. Mastering C, K R Venugopal, Tata McGraw-Hill.
4. The C Programming Language, Brian W. Kernighan, Dennis M. Ritchie, Prentice Hall, Second Edition.
5. Applications Programming in ANSI C, R. Johnsonbaugh , Martin Kalin, Macmillan, Second edition.
6. The Spirit of C, Mullish Cooper, Jaico publishing House.
7. How to solve it by Computer, R.G.Dromey, Pearson Education.

BCA-104
PC Software and Multimedia

Max Marks: 80

Min Marks: 27

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Unit - I MS-Word

Introduction to word processing software and it's features, creating new document, saving documents, opening and printing documents. *Home Tab:* setting fonts, paragraph settings, various styles(normal, no spacing, heading1, heading2, title, strong),find & replace, format painter, copy paste and paste special. *Insert Tab:* Pages, tables, pictures, clipart, shapes, header & footer, word art, equation and symbols. *Page Layout Tab:* Page setup, page background, paragraph (indent and spacing). *Mailing Tab:* create envelops and labels, mail merge. *Review Tab:* spelling and grammar check, new comment, Protect document, *View Tab:* document views, zoom, window (new window, split, switch window).

UNIT – II MS-Excel

Introducing Excel, use of excel sheet, creating new sheet, saving, opening, and printing workbook. *Home Tab:* Font, alignment, number, styles and cells and editing, conditional formatting. *Insert Tab:* Table, charts (column chart, pie chart, bar chart, line chart) and texts (header & footer, word art, signature line). *Page Layout Tab:* page setup options, scale to fit (width, height, scale). *Formulas Tab:* Autosum (sum, average, min, max),logical (IF, and ,or ,not ,true, false),math &trig (sin, cos tan, ceiling, floor, fact, mod, log),watch window. *Data Tab:* get external data from MS Access, sort and filter options, Data validation, group and ungroup. *Review Tab:* protect sheet, protect workbook, share workbook. *View Tab:* page breaks, page layout, freezing panes, split and hide.

UNIT – III MS-PowerPoint

Introducing power point, use of power point presentation, creating new slides saving, opening, and printing. *Home Tab:* new slide, layout, reset, delete, setting text direction, align text, convert to smart art, drawing options. *Insert Tab:* Table, picture, clipart, photo album, smart art, shapes and chart, movie and sound, hyperlink and action, text box , word art, object. *Design Tab:* page setup options, slide orientation, applying various themes, selecting background style and formatting it. *Animations Tab:* custom animation for entrance, exit and emphasis, applying slide transition, setting transition speed and sound, animation on rehears timing. *Slide show &view Tab:* start slid show options, setup options. **View tab:** presentation views, colours and window option.

UNIT – IV MS-Access

Front end and back end of application, introduction to dbms, features of dbms; Creating blank databases, saving it in accdb format. Defining data types in ms access. *Home Tab:* datasheet view, design view, pivot chart view, pivot table view, sort and filter options. *Create Tab:* creating tables, creating reports, query wizard. *External Data Tab:* importing data from access and excel sheet, exporting data to excel and ms word. *Datasheet Tab:* Relationships, fields and columns options, datatype and formatting options.

UNIT – V Animations and Graphics

Definition of multimedia, application of Multimedia, Basic Concept of 2D/3D Animation, Principle of animation, Hardware and software resources requirement for animation, introduction of various file formats (.mpeg, .gif, .jpeg, .mp4, .tif, .flv). **Creating a new movie in flash :**Get set Up, Input Text, Animate Text, drawing and painting with tools, brush, create basic shapes like Oval, Rectangle & Polystar Tools, tools working with object & filing the object, Transformation, object properties dialog box, creating layers motion tweeing, shape tweeing , mask layers, basic action scripts, importing sound through Flash.

RECOMENDED BOOKS:

1. Microsoft Office 2007 fundamentals, L Story, D Walls.
2. MS Office, S. S. Shrivastava, Firewall Media.
3. Office 2000 made easy ,Alan Neibauer, Tata McGraw Hill.
4. FLASHMX Bible -Robert Reinhart
5. Sams Teach Yourself Macromedia Flash 8 in 24 Hours,Phillip Kerman.
6. How to do everything with Macromedia , Bonnie Blake, Doug Sahlin
7. Multimedia Making it works ,Tay Vaughan, Tata McGraw Hills.

Max Marks: 80   **Min Marks: 27**

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

UNIT-I Basics of Internet

History, Evolution, Internet applications, Intranet, WWW, Emergence of Web, Web page, Web Site, client, Web Servers, Web Browser, Web concept, Search Engine, URL, DNS, Internet Connection, Internet Service Provider, Web Design Strategies, OSI and TCP/IP model, various protocols like HTTP, FTP, SMTP, TELNET. Internet services: Email concept, Sending and receiving secure Email, Voice and video Conferencing, web Based chat services, Chat Services, Internet Messaging, Internet Relay Chat, News Group.

UNIT-II HTML

Introduction, Html version, HTML tags, Creating headings on a web pages :Aligning the headings, creating list, Working with Links: Creating a Hyperlinks ,Setting the Hyperlink Colors, Linking Different sections of A web page, Creating Paragraph, Working with Images, using Images as Links, Working with Tables, Working with Frames: Creating a Frame, Creating Vertical and Horizontal Frames, Setting the Frame Border Thickness, Applying Hyperlink Targets to a Frame, Creating an HTML Form, Specifying the Action URL and Method to Send the Form, Using the HTML Controls.

UNIT-III DHTML and Java Script

DHTML: Introduction, Cascading style sheet (CSS), Inline Style sheet, External Style Sheet, Internal Style Sheets, DHTML document object model, Event handling.
Java Script: Introduction, Language elements, Variables, operators, control statement Array and function in JavaScript, Objects of Java script, Client-Side and server side Java script, Benefits of using JavaScript, Embedding JavaScript into HTML Page, Handling Events, overview of VB Script.

UNIT-IV Introduction to PHP

Features, Advantages of PHP over other scripting languages, Installing, creating and running PHP script, working with variable, constant, operators in PHP, Control statements, Looping constructs, String function, Arrays, User defined function, Working with forms, Accessing database through PHP.

UNIT-V Introduction to E Commerce

Definition of E-commerce, The scope of E-commerce, Definition, Internet and its impact on traditional businesses, E-payment System, Security threats with E-commerce. Types of E-commerce: Business-to-Business (B2B), Business-to-Consumer (B2C), Business-to-Business-to-Consumer (B2B2C), Consumer-to-Consumer (C2C), E-market, Future of E-market.
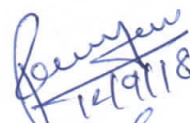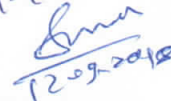
RECOMENDED BOOKS:

1. Web Technology, A developer's Perspective, N.P Gopalan and J. Akilandeswari, PHI publication.
2. Web Technologies: HTML, JAVASCRIPT, PHP, JAVA, JSP, ASP.NET, XML and Ajax, Black Book by Dream Tech Press.
3. Internet : The Complete Reference Millennium Edition Margaret Levine Young, Doug Muder.
4. The Complete Reference: HTML and CSS, Thomas A. Powell ,McGrawHill.
5. JavaScript The Complete Reference,Thomas Powell, Fritz Schenider, McGrawHill, Third Edition
6. Introduction To HTML,Kamlesh N.Agrawal ,O.p,Vyas ,P.A.Agrawal.
7. Web Technology and Design, Xavier,C,New Age International.
8. HTML, DHTML,JavaScript,Perl and CGI, Ivan Bayros,BPB Publication.
9. Internet and Web Design, Ramesh Bangia ,New Age International.
10. Business on the net, Kamlesh N. Agarawala, Amit Lal & Deeksha Agarawal, Macmillan India Ltd.
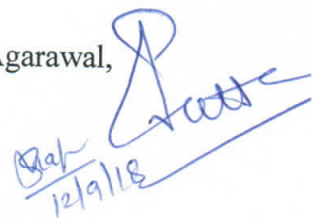
BCA –106
Communication Skills

Max Marks: 80   **Min Marks: 27**

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

OBJECTIVE

This course is designed to enable the students of computer education to speak and write English with a fare degree of grammatical correctness. The inputs in the course contents are designed to let the students develop their communication skills and effectively write and speak in business scenario.

UNIT – I

Structure of sentences- Simple, Complex and Compound.
Clauses: Co-ordinate and Subordinate Clause,
The tenses and aspects. Modal, Gerund, Participle: Non Finite and Finite, Infinitive.

UNIT – II

Transformation of sentences:-
Interchange of Active and Passive Voice.
Interchange of Affirmative and Negative Sentences.
Interchange of Explanative and Assertive Sentences.
Interchange of interrogative and Assertive Sentences.
Direct and Indirect Speech.

UNIT - III

Report writing.
Applications writing.
Letter writings: Formal (Enquiry letter, Order letter, Complaint letter Sales Letter) and Informal, Description of events.

UNIT- IV

Precis Writing
 Reading Comprehension
Summarising
Paraphrasing
Presentation Skills

UNIT-V

Official Communication- Notice, Circular, Minutes of meeting , Agenda of meeting, Memorandum
Modern media of communication- Email(Language of Emails, Format, E-mail writing Strategies, Advantage, Characteristics, Formating) Video conferencing, Fax

RECOMENDED BOOKS:

1. Living English Structure by W.S. Allen.
2. A Practical English Grammar by Thomson and Martinet.
3. English Grammar and Composition by Wren & Martin
4. Advance Grammar in Use by Martin Hewings
5. Essentials of Business Communication by Rajendra Pal and J.S. Korlahalli
6. Effective Technical Communication by M Ashraf Rizvi

Bridge course for BCA (Only For Non mathematics Students)

Max Marks: 50

Min Marks: 17

Note: Fundamentals of the topics are to be dealt to enable the students to understand the Topics. The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.. Only Simple calculator is allowed not scientific.

UNIT -I
Algebra
Partial fractions, Arithmetic Progression & Geometric Progression. Determinants and matrices, Inverse matrix.

UNIT-II
Permutation combination, method of induction, Binomial Theorem for positive integral index. And any index (without proof), Exponential and logarithmic series.

UNIT-III
Trigonometry
Measurement of angles, Trigonometric ratios, simple formula, compound angles, Trigonometric ratios of multiple and sub multiple angles. Height and Distance, Inverse Function.

UNIT-IV
Geometry
Locus, Cartesian coordinate system, Distance formula, Section formula, Slope of a straight line various forms, Angle between two lines, pair of straight lines, parabole, ellipse and hyperbola.

UNIT-V
Statistics
Frequency Distribution, Measures of central tendency, Mean. Median, Mode, G.M., H.M., Inter quartile range, Mean deviation, Standard deviation.

RECOMENDED BOOKS:
Mathematic (class XI and XII), R.D.SHARMA
YOUGBODH Mathematics, (class XI and XII)

BCA I
BCA-107 LAB I: Programming Lab in 'C'

Max Marks: 100

Min. Marks: 50

Scheme of Examination- Practical examination will be three programs. It will be of 3 hours duration. All programs must carry flow charts & algorithms. The distribution of practical marks will be as follows –

Program 1	20
Program 2	20
Program 3	20
Viva	25
Practical Record	15
Total	**100**

Note: All these Programs and similar types to these can be made in Practical File. Practical file should contain printed programs with name of author, date, path of program, unit no, output, screenshots etc. There should be comment wherever applicable.

List of Practical

Input and Output, Formatting

1. Write a program in which you declare variable of all data types supported by C language. Get input from user and print the value of each variable with alignment left, right and column width 10. For real numbers print their values with two digits right to the decimal.

Loops, Decisions

2 Write program to generate following pattern

a)
```
A B C D E F G
A B C   E F G
A B       F G
A           G
```

c)
```
        *
      *   *   *
    *   *   *   *   *
```

b)
```
1
1 2
1 2 3
1 2 3 4
```

d)
```
1
1 2 1
1 3 3 1
1 4 6 4 1
```

3. Write program to display number 1 to 10 in octal, decimal and hexadecimal system.
4. Print sin series up to n terms and its sum.

5. Write a program to perform following tasks using switch…case, loops, and conditional operator (as and when necessary).
   a) Find factorial of a number
   b) Print Fibonacci series up to n terms and its sum.
   c) Print prime numbers up n terms.
   d) Print whether a given year is leap or not.

Array

6. Create a single program to perform following tasks using switch, if..else, loop and single dimension character array without using library function:
    a) To reverse the string.
    b) To count the number of characters in string.
    c) To copy the one string to other string;
    d) To find whether a given string is palindrome or not.
    e) To count no. of vowels, consonants in each word of a sentence and no. of punctuation in sentence.

7. Write a program that read the afternoon day temperature for each day of the month and then report the month average temperature as well as the days on which hottest and coolest days occurred.

8. Create a single program to perform following tasks using switch, if..else, loop and double dimension integer array of size 3x3:
    a) Addition of two matrix.
    b) Multiplication of two matrix.
    c) Sum of diagonal elements

9. Create a single program to perform following tasks using switch, if..else, loop and double dimension character array of size 5x40:
    a) Sorting of string.
    b) Finding the smallest string.
    c) Searching for presence of a string in array

Functions

10. Write program using the function power (a, b) to calculate the value of a raised to b.
11. Write program to demonstrate difference between static and auto variable.
12. Write program to demonstrate difference between local and global variable.
13. Write a program to perform following tasks using switch...case, loops and function.
    a) Find factorial of a number
    b) Print Fibonacci series up to n terms and its sum.

14. Write a program to perform following tasks using switch...case, loops and recursive function.
    a) Find factorial of a number
    b) Print Fibonacci series up to n terms and its sum.
    c) Print natural series up to n terms and its sum

15. Write a function to accept 10 characters and display whether each input character is digit, uppercase letter or lower case letter.

Array & Function

16. Create a single program to perform following tasks using switch, if..else, loop, function and double dimension integer array of size 3x3:
    a) Addition of two matrix.
    b) Multiplication of two matrix.

17. Create a single program to perform following tasks using switch, if..else, loop, user defined function and single dimension character array:
    a) To reverse the string.
    b) To find whether a given string is palindrome or not.

Structure & Union

18. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare a structure variable of student. Provide facilities to input data in data members and display result of student.

19. Create a structure Date with data member's dd, mm, yy (to store date). Create another structure Employee with data members to hold name of employee, employee id and date of joining (date of joining will be hold by variable of structure Date which appears as data member in Employee Structure). Store data of an employee and print the same.

20. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare array of structure to hold data of 3 students. Provide facilities to display result of all students. Provide facility to display result of specific student whose roll number is given

Pointer

21. Write a program of swapping two numbers and demonstrates call by value and call by reference.

22. Write program to sort strings using pointer exchange.

23. Write program to find biggest number among three numbers using pointer and function.

24. Write program to Create a structure Employee having data members to store name of employee, employee id, salary. Use Pointer to structure to store data of employee and print the stored data-using pointer to structure.

25. Write program to demonstrate difference between character array and pointer to character

26. Write program to demonstrate pointer arithmetic.

File Handling

27. Write program to copy content of one file to other file removing extra space between words name of files should come from command line arguments.

28. Write program to create a file 'data' containing a series of integers and count all even numbers present in the file 'data'.

29. Write a program to count no. of tabs, new lines, character and space of a file.

30. Write a program to read item number, rate and quantity from an inventory file and print the followings:

    a) Items having quantity > 5.

    b) Total cost of inventory.

BCA I
BCA-108 LAB II: PC Software Lab

Max Marks: 100   **Min Marks: 50**

Scheme of Examination:

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows:

Program 1	-	15
Program 2	-	15
Program3	-	15
Program4	-	15
Viva	-	25
Practical Record	-	15
Total	**-**	**100**

Note: **All these Programs and similar types to these can be made in Practical File. Practical file should contain printed programs with name of author, date, path of program, unit no, output, screenshots etc. There should be comment wherever applicable.**

MS-WORD

Q1. Open a document. Type the following text and perform the tasks as instructed below:

Working with Word Processor…

As already mentioned, a word processor is a package that processes textual matter and creates organized and flawless documents. In addition to it a word processor not only remote all the limitation of typewriter but also offers various useful features that cannot be even dreamt of with typewriter.

Also if same textual matter is to be reproduced with minor changes, retyping the only option in typewriters.

The word processing (and word processor) originated way back in 1964 when special typewriters. Magnetic tape Selectric typewrites (<u>MIST</u>) were launched by IBM (International Business Machines).

(i).Insert the following text after the first paragraph:
"The main components of a word processing system are listed below":
- Computer
- Printer
- A word processing software

(ii). Save the document as Word.doc?
(iii). Move the second paragraph to the end of the document by using drag and drop?
(iv). Move the second paragraph to the end of the document using cut, paste operation?
(v). Undo the above action?
(vi).Redo the above action?
(vii). Go to end of the document (in one step)?
(viii). Go to beginning of the document (in one step)?
(ix). Insert page break before the paragraph?

(x). Search the word "Computer" in your document with options 'Match Case', find whole words only?

(xi). Replace the word "Typewriter" with word "Processor" in your document?

(xii). Undo the above action?

(xiii). Remove all page breaks from your document?

(xiv). Change the magnification of your document to different percentage using zoom?

(xv). Write the above written paragraphs and give the options as follows:-
- Assignment Justified
- Indentation: Left 0.2
- Right 0.2
- Spacing: before 6 pt. and after 6 pt.
- Special : First line by 0.4"
- Line spacing 1.5 lines

(xvi). Set the default tab stop to 0.3"?

(xvii). Set the margins to 1.25?

(xviii). Format the page using?
1. Left margin:0.5, right margin:0.5
2. Top margin:1.5, bottom margin:0.5
3. Gutter margin: -
   - indentation: left 0.2, right:0.2
4. Header margin: 0.5.

(xix). Format the each occurrence of group of words "Word Processor" as bold, italic, underline and small caps using find and replace with formatting options?

(xx). Align the heading to center and make it bold, underlined and italicized.

Q2: Type the text as shown below and perform the tasks as directed:

Computers

Computer is an electronic device that processes and gives meaningful information. Computers are being used in almost all the fields today

Expert systems:

Human thinking and artificial intelligence

Can computer think?

AI at work today: Natural Language program and Expert system.

The impact of computers on people:

The positive impact

The potential dangers

The impact of computers on organizations

The information processing industry

The positive impact on using organizations

The potential dangers for using organizations

(i). Search for the word 'computer' in the entire document. All the occurrences of the given word are to be searched irrespective of the case?

(ii). In the above question note that word also searches 'computerization' and 'computerizations'. Now make sure that this time Word searches only for the word 'computer in the entire document.

(iii). Change the entire uppercase letter to lowercase?

(iv). Give a heading to the above written text 'COMPUTERS IN TODAY'S WORLD'?

(v). Center aligns the heading text 'computer' that appears in first line.

(vi). Apply outside border to entire document.

(vii). Apply outside border to the just heading text.

(viii). Change page setup according to the following specifications
  - 1Top margin 1.5", bottom margin: 1.5"
  - Gutter: 1" left margin: 1.5"
  - Right margin: 1"
  - Page width: 7.5", page height: 6.5"
  - Page width: 7.5", page height: 6.5"
  - Orientation: portrait.

(ix). Give a header 'Creations' and footer 'The school of computing'. The footer should also consist of page no's?

(x). Give appropriate commands for giving different header and footers for first page and odd and even pages?

(xi). Save and close the document.

Q3. Type text and format the text as show below:

$4H_3PO_3 = 3H_3PO_4 + PH_3$

$PCL_3 + CL_2 = PCL_5$

$(x+y)^2 = x^2 + y^2 + 2xy$
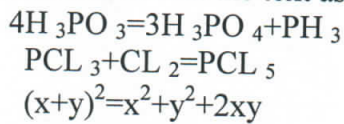
Q4. Write the following equation in MS-Word:

$C_2H_5OH + PCL_5 = C_2H_5CL + POCL_3 + HCL$

$A = \pi r^2$
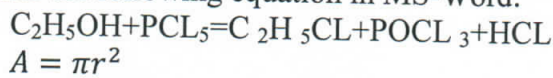
$a \div b \neq 0$

Q5. Write the following in MS-Word:
- Preheat the oven to 220°C.
- Copyright ©
- Registered ®
- Trademark ™

Q.6. Create the following table in MS-Word:

Name		Rahul	
Roll No.		101	
Subject	Max	Min	Obtain
Java	100	33	75
Multimedia	100	33	70

Q7. Create a document in MS-Word. Set the watermark as Microsoft. Also write the following text as formatted below:

Measuring programming progress by lines of codes is like measuring aircraft building progress by weight.

-------BILL GATES

Q8. Create the following:

Q9. Create the following:

MULTIMEDIA

Computer

Q10. Create the following table in MS-Word:-

Admission 2005-06

Course	OC	BC	MBC	SC/ST	TOTAL
Computer science	9	18	5	5	37
Commerce	14	25	6	5	50
Mathematics	12	20	4	4	40

Q11. Create table as shown:-

	Car	Price
Maruti	Omni Van	200000
	Maruti 800	242000
Tata	Sumo	390000
	Sierra	447000

Q12. Insert the following in MS-Word.
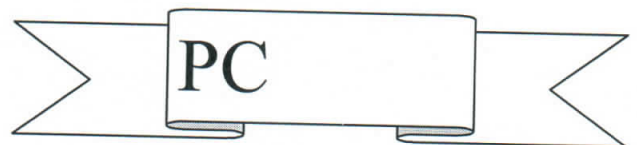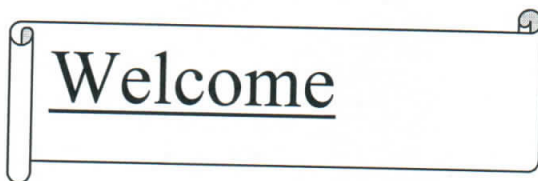
Welcome

PC

Q13. Insert the following in MS-Word.
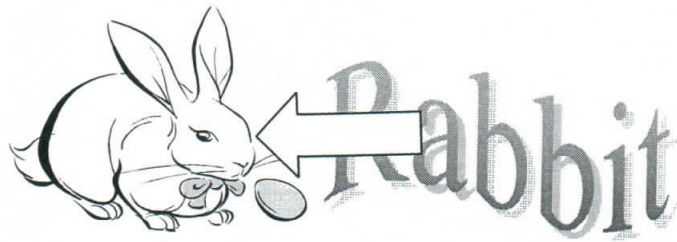
Q14. Write the following in MS-Word.
  ➢ This is sentence case.
  ➢ this is lowercase.
  ➢ THIS IS UPERCASE.
  ➢ This Is Capitalize Each Word.
  ➢ This IS Toggle cASE.

Q15. Create the following in MS-Word:
  • Actors
    ➢ Bruce Willis
    ➢ Gerard Butler
    ➢ Vin Diesel
  • Actress
    ➢ Julia Roberts
    ➢ Angelina Jolie
    ➢ Kate Winslet
    ➢ Cameron Diaz

Q16. Write the following in MS-Word:
Cricket Players
  A. Batsman
    I.   Sachin Tendulkar
    II.   Rahul Dravid
    III. Virendra Sehwag

  B. Bowler
    a.   Kumble
    b.   Zeheer Khan
    b.   Balaji

  C. Spinner
    a)   Harbhajan
    b)   Kumble
    c)   Kartik

Q17. Write a letter to send invitation to your friend inviting on your birthday.

Q18. Create label for your friends address.

MS-Excel

1.Create the following worksheet and save the worksheet as wages.xls
PACE COMPUTERS (ATC CEDT), Govt. Of India
Payroll For Employee (Temporary)

Today's date	2-Mar-17
Pay Rate	900

Worker's Name	Hired On	days Worked	Gross Wages
Mahendra	3-Feb-17		
Anand	4-Feb-17		
Ashish	5-Feb-17		
Santosh	6-Feb-17		

(I) Calculate Days worked and gross wages.

2.Create the following worksheet and save the worksheet as wages.xls

Name	Basic (monthly) (Rs.)	HRA (% of Basic)	DA (Rs.)	Total Salary (2016)	Bonus (Rs.)	Total (Salary) (2017)	% Increase
Jaya	9300	20	1250		2300		
Padma	15600	22	1380		2700		
Jaanvi	18500	19	1436		3000		

(i) To calculate the total salary as sum of Basic salary, HRA, DA for each employee for year 2017.
(ii) Calculate total salary for year 2017 as sum of salary of 2016 and bonus.
(iii) Calculate % increase in salary from 2016 to 2017.

3.Create a worksheet as follows:

<p align="center">Pace Computer (ATC CEDT) Govt. Of India</p>
<p align="center">Payroll for Employee (Permanent)</p>

empcode	name	doj	salary	bonus	net salary
E001	Ayushi	3-Feb-16	17000		
E002	Sanjeet	4-Mar-15	19000		
E003	Jayant	3-Jan-17	18000		
E004	Aishwarya	6-Mar-15	17500		

(i) Allow bonus 12000 to employees having service > 2 years other wise allow bonus 7000.
(ii) Find net salary as sum of bonus and salary.

4. Create the worksheet as follows:

RollNo	Name	English	Maths	Total	Average	Division
101	Parul	95	99			
102	Prasad	92	95			
103	Neelkanth	70	69			
		Class Average				

(i) Find total of two subjects for each student.
(ii) Find average of two subject for each student.
(iii) Find class average as average of average column
(iv) Find division of student as first, second, third assume percentage of division of your own and maximum marks in each subject as 100
(v) Apply Conditional formatting for division column, first division should be in bold, second division should be in italic and third division should be in underline

5. Create macro in excels to make selected cell, bold italic, outside bordered and center across select.

6. Create bar chart with given data:

Content	2015	2016	2017
tea	19	23	25
coffee	22	24	22
sugar	45	40	45

(i) Provide heading production detail.
(ii) Provide z axis title;lacks metric tonne.
(iii) Provide x axis title year.

7. Create a table with column heading as shown below and using form perform data entry of records.

Zone	Department	Employee	Salary
West	Marketing	Mukesh	10500
East	Sales	Rahul	20000
South	Marketing	Suresh	5500
North	Marketing	Anju	25000
South	Sales	Neeraj	8000
North	Sales	Ajay	8000
South	Marketing	Mahesh	7500
West	Sales	Rajesh	4500

(i) Sort the data according to Zone then by Department.
(ii) Use Group and Outline feature to show & hide details.

8. Create a table with column heading as shown below and using form perform data entry of records.

Zone	Department	Employee	Salary
West	Marketing	Mukesh	10500
East	Sales	Rahul	20000
South	Marketing	Suresh	5500
North	Marketing	Anju	25000
South	Sales	Neeraj	8000
North	Sales	Ajay	8000
South	Marketing	Mahesh	7500
West	Sales	Rajesh	4500

(i) Use filter command to show records having zone: West.
(ii) Use filter command to show records having zone: West and salary less than 5000.
(iii) Use filter command to show records having salary greater than 10000.

9. Create Pivot table using Data of exercise 8.

10. Suppose a database exists in ms- access Your are required to import the data . How will You?

11. Create a table using table feature

Principle	1500
Rate	4%
Time	5

300	3	4	5
1%	45	60	75
2%	90	120	150
3%	135	180	225

12. Using goal seek feature find out the interest rate it must be to earn interest 500

Principle	1500
Rate	4%
Time	5

Q.13 Look at the following table where angle is given in degrees. Using various trigonometric functions available in excel, write steps to calculate angles in required formats.

Angle (Degrees)	Angle (Radians)	Sin	Cos	Tan	Cosec	Sec	Cot
0							
30							
45							
60							
90							

Q.14 Using Floor and Ceiling functions write steps to calculate
(a). nearest greatest height which is less than or equal to the given height
(b). nearest least height which is greater than or equal to given height

Height	Nearest Greatest age less than or equal to given height	Nearest least age greater than or equal to given height
15.6		
30.7		
-34.2		

Q.15 if age is given in months, break it in year and moths separately (as shown in example below).

AGE (In Months)	Age	
	Year	Month
25	2	1
35		
45		

Q.16 if you have cards of 3 different colors. In how many different ways you can arrange those cards. Which formula will you prefer to do so?

MS-POWERPOINT

Q1.Create a PPT of At least 10 slides with one slide for comparison, one slide displaying a chart with the table.

Q2. Create a PPT presentation use rehearse timing for the slide show.

Q3. Create a PPT presentation slide import sound and video clips.

Q4. Create PPT presentation with hyper linking.

Q5. Create PPT presentation and apply themes and transition.

MS-ACCESS

1. Create Following Tables in Access
a). tblProducts

Field Name	Data Type

ProductID	AutoNumber
ProductName	Text Field Size (50)
QuantityOnHand	Data type-Number Field Size-Integer
Cost	Data type-Number Field Size-Single
SalesPrice	Data type-Number Field Size-Single

Primary Key - ProductID

b). tblCustomer

Field Name	Data Type
CustomerID	AutoNumber
CustomerName	Text Field Size (40)
ContactNo	Text Field Size (10)

Primary Key - CustomerID

c). tblSales

Field Name	Data Type
SalesID	AutoNumber
CustomerId	Data type-Number Field Size-Integer
InvoiceNumber	Text Field Size (10)
InvoiceDate	Date

Primary Key - CustomerIdInvoiceNumber

d). tblSalesDetail

Field Name	Data Type
SalesDetailID	AutoNumber
SalesId	Data type-Number Field Size-Integer
ProductId	Data type-Number Field Size-Integer
Quantity	Data type-Number Field Size-Integer
SalesPrice	Data type-Number Field Size-Single

Primary Key SalesIdProductId

2. Set Relationship among tables.
3. Create Data entry Screen for products and customer table and enter below data in corresponding table.
    Data for tblProduct

ProductName	QuantityOnHand	Cost	SalesPrice
1 TB Toshiba HDD	10	3600	3800
16 GB HP Pen Drive	20	450	500

Data for tblCustomer

CustomerName	ContactNo
Nagendra Dewangan	9827123456
Mahendra Soni	9827123657

4. Create a single combined Data entry screen for Sales & SalesDetail table using master detail concept and enter following 2 Records.
    CustomerName: Nagendra Dewangan
    Invoice Number: Sal/18/2

Invoice Date: 2-Mar-2017

ProductName	Quantity	SalesPrice
1 TB Toshiba HDD	5	3800
16 GB HP Pen Drive	3	500

CustomerName: Mahendra Soni

Invoice Number: Sal/19/2

Invoice Date: 3-Mar-2017

ProductName	Quantity	SalesPrice
1 TB Toshiba HDD	4	3800
16 GB HP Pen Drive	2	500

5. Create Sales Bill Report.
6. Validate data in tables as well as in data entry screen.

Flash

1. Create a Flash movie to create mask.

2. Create a Flash movie to create Fade In/Fade Out in four pictures.

3. Create a Flash movie to create the symbol of a wheel and scale and rotate it.

4. Create a flash movie to create growing circles.

5. Create hand writing in Flash.

6. Create a Flash movie of a moving car with rotating wheels.

7. Transform a circle into a square using shape tween.

8. Create a Flash movie to import text from MS-Word and apply different transformations.

9. Create a Flash movie to demonstrate onion skin markers.

10. Create a Flash movie to demonstrate motion guide.

BCA I
BCA-109 LAB III: Web Technology Lab

Max Marks: 100   **Min. Marks: 50**

Practical List

Scheme of Examination- Practical examination will be of three programs. It will be of 3 hours duration. The distribution of practical marks will be as follows –

Program 1 (HTML)	15
Program 2 (DHTML)	15
Program 3 (JavaScript)	15
Program 4 (PHP)	15
Viva	25
Practical Record	15
Total	**100**

Note: All these Programs and similar types to these can be made in Practical File. Practical file should contain printed programs with name of author, date, path of program, unit no, output, screenshots etc. There should be comment wherever applicable.

Internet

1. Creating Email account.
2. Configuring Web server for Local Computer.
3. Working with various search engines (Google, Yahoo, Bing, etc.).
4. Browsing up various websites (e.g. Railway Reservation, Airline Reservation, Cinema Ticket Booking, Bill payments etc.)
5. Online payment procedure (any one).

HTML

6. Write an HTML program to create the following table:

Class	Subject1	Subject2	Subject3
BCA I	Visual Basic	PC Software	Electronics
BCA II	C++	DBMS	English
BCA III	Java	Multimedia	CSA

7. Write an HTML program to create the following lists:
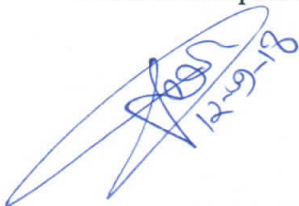   - C
   - C++
   - FORTRAN
   - COBOL

8. Write an HTML program to create the following lists:
   1. Java
   2. Visual Basic
   3. BASIC

   4. COBOL

9. Write an HTML program to demonstrate hyperlinking between two web pages. Create a marquee and also insert an image in the page.

10. Create a Web Page which contains information about your favourite freedom fighters. Design the page with attractive background colour, text colour, image etc.
11. Write an HTML document to print your bio-data in a table format.
12. Write an HTML program to create the following table:

Car Price List

Maruti		Tata		Ford	
Model	Price	Model	Price	Model	Price
Maruti 800	2 Lac	Sumo	2 Lac	Ikon	5 Lac
Omni	3 Lac	Scorpio	3 Lac	Gen	2 Lac

13. Write an HTML program to create the following table:

Students Records

Name	Subject	Marks
Arun	Java	70
	C	80
Ashish	Java	75
	C	69

14. Create an HTML document and embed a flash movie in it.
15. With the Frameset Tag and Frame Tag Create the following Document:

Physics.html	Welcome.html	Maths.html
Chemistry.html		Computer.html
Biology.html	Heading.html	
Zoology.html		Acount.html

16. Write an HTML program to create a web page with an image as background and the following text:

New Delhi

New Delhi, the capital and the third largest city of India is a fusion of the ancient and the modern. The refrains of the Muslim dynasties with its architectural delights, give the majestic ambience of the bygone era.

On the other side New Delhi, the imperial city built by British, reflect the fast paced present. The most fascinating of all is the character of Delhi which varies from the 13th present century mausoleum of the Lodi kings to ultra modern glass skyscrapers.

17. Create the following HTML form.

18. Create the following HTML form.

Enter your name
Enter your rollno

Subjects:
☐ Java
☐ C
☑ Visual Basic
☐ C++

Class: BCA I
BCA II
MCA II
BCA III

Submit Query

19. Design a Web Page, Insert an image on to the web page such that image is of height 300 and width 300 pixels. The image should have an ALT text in it.

20. Design a Html page for the following
    1. Set an image as a link
    2. Open a link in a new browser window
    3. Jump to another part of a document (on the same page)
    4. How to link to a mail message with CC, BCC and Subject Entries
    5. Redirect a user to another URL after 5 seconds

JAVASCRIPT

21. Create a script using for loop to prime n. between 1 and 50.
22. Write a script to get the largest value in an array.
23. Write a function to calculate the factorial of a number (a non-negative integer).
24. Write a script to demonstrate data validation.
25. Write a program to print date using JavaScript.
26. Write a program to Sum and Multiply two numbers using JavaScript.
27. Write a program to Show use of alert, confirm and prompt box.
28. Write a program to redirect, popup and print function in JavaScript.
29. Create validation Form in JavaScript.
30. Write a JavaScript program to change background color after 5 seconds of page load.

DHTML

31. Create a Web Page which shows the changes of header dynamically.
32. Create a Web page which explains the use of relative positioning.
    Output:

33. Display an alert box to alert the x and y coordinates of the cursor.
    Output:

Click in the document. An alert box will alert the x and y coordinates of the cursor.

Microsoft Internet Explorer

⚠ X coords: 360, Y coords: 250

OK

34. Design a Web page to, if the user right clicks on the document area an alert box should appear instead of short-cut menu.
35. Design a Web page to display a Digital Clock.

PHP

36. Create a script using for loop to add all the integers between 0 and 30 and display the total.
37. Create a script to construct the following pattern, using nested for loop exercises.
38. Write a PHP script to get the largest key in an array.
39. Write a function to calculate the factorial of a number (a non-negative integer).
40. Write a PHP script to check string for palindrome.

SCHEME OF EXAMINATION 2018-2019

BCA PART - II

Subject Code	Subject Paper	Theory Marks		Internal Marks		Teaching Load per Week		
		Max. (A)	Min. (B)	Max. (C)	Min. (D)	L	T	P
* BCA201	Part-I : Numerical Analysis	50		-	-	2	-	-
	Part-II : Differentiation and Integration	50	60	-	-	2	-	-
	Part-III : Data Structures	50		-	-	2	-	-
BCA202	DBMS (Oracle, SQL)	100	40	50	30	4	2	-
BCA203	Programming in C++ & Visual C++	100	40	50	30	4	2	-
BCA204	Computer Networking & Internet Technology	100	40	50	30	4	2	-
BCA205	A. Shell Programming in Unix/Linux	50	20	-	-	2	2	
	B. Practical based on course 205A	50	20	-	-	-	-	1x2
BCA206	A. Principles of Management	50	40	-	-	2	-	-
	B. Foundation Course	50		-	-	2	-	-
BCA207	Practical Based on Course-202 & Mini Project (Visual Basic & Oracle/Access)	100	50		-	-	-	3x2
BCA208	Practical Based on Course-203	100	50		-	-	-	2x2
TOTAL		850	360	150	90			
GRAND TOTAL	(PAPER + INTERNAL)	(A+C) 1000		(B+D) 450				

* Minimum passing marks in subject BCA201 is 40% of total marks 150(i.e. Total of Part I + Part II + Part III marks of BCA201)

SCHEME OF EXAMINATION 2018-2019
BCA PART-III

Subject Code	Subject Paper	Theory Marks		Internal Marks		Teaching Load per Week		
						L	T	P
		Max. (A)	Min. (B)	Max. (C)	Min. (D)			
*BCA301	Part I- Calculus & Geometry	50	} 60	-	-	2	-	-
	Part II-Differential Equation & Fourier Series	50		-	-	2	-	-
	Part III- Computer System Architect	50		-	-	2	-	-
BCA302	Java	100	40	50	30	4	2	-
BCA303	Operating System	100	40	50	30	4	2	-
BCA304	Software Engineering	100	40	50	30	4	2	-
BCA305	A. MULTIMEDIA TOOLS AND APPLICATIONS	50	20	-	-	2	2	-
	B. Practical based on course 305A	50	20	-	-	-	-	2x2
BCA306	A. Financial Management & Accountancy	50	} 40	-	-	2	-	-
	B. Foundation Course	50		-	-	2	-	-
BCA307	Practical Based on Course-302	100	50	-	-	-	-	3x2
BCA308	Project	100	50	-	-	-	-	1x2
TOTAL		850	360	150	90			
GRAND TOTAL	(PAPER + INTERNAL)	(A+C) 1000		(B+D) 450				

* Minimum passing marks in subject BCA301 is 40% of total marks 150(i.e. Total of Part I + Part II + Part III marks of BCA301)

BCA - 201
THEORETICAL FOUNDATION OF COMPUTER SCIENCE
PAPER - I : Numerical Analysis

Max Marks : 50

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Simple / Scientific calculator is allowed.

UNIT – I SOLUTION OF POLYNOMIAL AND TRANSCENDENTAL ALGEBRIAC EQUATIONS

Bisection method, Regula falsi method & Newton's method, Solution of Cubic & Biquadratic Equation.

UNIT – II SIMULTANEOUS EQUATIONS AND MATRIX

Gauss-Jordan method, Cholesky's method , Reduction to lower or upper Triangular forms , Inversion of matrix , method of partitioning , Characteristics equation of matrix , Power methods , Eigen values of matrix , Transformation to diagonal forms.

UNIT – III INTERPOLATION - SINGLE VARIABLE FUNCTIONS

Newton's Interpolation formula, Newton's Forward and Backward Difference Interpolation Formula, Langranges Interpolation formula, Newton's Divided Difference Interpolation Formula.

UNIT – IV NUMERICAL DIFFERENTIATION AND INTEGRATION

Newton - cotes integration formula, Trapezoidal Rule, Simpson's One-Third and Three-Eight Rule, Waddle's Rule.

UNIT – V NUMERICALS SOLUTION OF ORDINARY DIFFERENCTIAL AND INTEGRAL EQUATION

Numerical Solution of first order Ordinary Differential Equations, one step method, Euler's, Picard's and Taylor's series Methods, Picard's Methods for successive approximations, Runga-Kutta Method.

BOOKS RECOMMENDED

1. *Garewal*   : Numerical methods
2. *Gupta & Mallic*   : Numerical Methods
3. *Hamming R.W.*   : Numerical methods for scientist & Engineers. (McGraw Hill)
4. *Conle S.D.*   : Elementary numerical analysis
   Carl De Boor   (International Book Company London)
5. *Jain M.K.*   : Numerical methods for Science and Engineering
   Iyengar S.R.K   calculations (John Willey & Sons)

BCA - 201
THEORETICAL FOUNDATION OF COMPUTER SCIENCE
PAPER - II : Differentiation and Integration

Max Marks : 50

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

Differentiation

UNIT - I

Successive Differentiation, Lebnitz's Theorem, Rolle's Theorem, Lagrange's and Cauchy Mean Value Theorem, Taylor's Theorem, Expansion by Taylor's and Maclaurin's series.

UNIT – II

Asymptotes, Curvature, Test of Convexity and Concavity, Point of Inflaxion, Tracing of Curves in Cartesian and Polar form.

UNIT - III

Partial and Directional Derivatives of functions of two and three variables, Jacobian's Theorem.

Integration
UNIT - IV

Integration of functions by parts, by substitution and by partial fraction; Definite Integral and its properties.

UNIT - V

Integration of functions of two and three variables, Change of order of Integration, Determination of Area and Length.

BOOKS RECOMMENDED
1. Differential Calculus - Gorakh Prasad
2. Differentiation and Integration   - H.K. Pathak

BCA - 201
THEORETICAL FOUNDATION OF COMPUTER SCIENCE
PAPER - III : Data Structures

Max Marks : 50

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT – I INTRODUCTION -

Introduction, Basic terminology, Elementary data organization, Data structure, Data structure operation,

UNIT – II CONCEPTS OF ARRAYS, RECORDS AND POINTERS –

Basic Terminology, Linear Array; Sorting : Bubble Sort; Searching: Liner Search, Binary Search, Pointers : Pointer Array; Records: Record Structures.

UNIT – III LINKED LISTS, STACKS, QUEUES, RECURSION –

Link lists, Traversing a linked list, searching a linked list; Insertion into a linked List, Deletion from a Linked List, Stacks, Array Representation of Stack; Queues.

UNIT – IV TREES -

Types of Trees, Binary Trees, Representing Binary, Traversing binary tree, Searching and Inserting in Binary Tree, Deleting in Binary tree.

UNIT - V
SORTING AND SEARCHING –

Sorting, Insertion Sort, Selection Sort, Merging, Merge.

BOOKS RECOMMENDED :

1. Data Structure   - Seymour Lipschutz (Schaum's Series).
2. Data Structure & Program Design   - Robert L. Kruse, 3rd Ed., Prentice Hall.

BCA -202
DBMS (Oracle, SQL)

Max Marks : 100

Min. Marks : 40

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT – I OVERVIEW OF DATABASE MANAGEMENT SYSTEM :

Database, Definition of DBMS, Purpose of Database System, Data abstraction, Instances and Schema, Data Independence, Data administration roles, Different kinds of DBMS users, Data Dictionary, Data base languages- DDL, DML, DCL Data Models- The Relational approach, The Network approach, The Hierarchical approach, DBMS storage structure and access method.

UNIT – II ENTITY-RELATIONSHIP MODEL:

Entity - Relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; Concept of keys: candidate key, primary key, alternate key, foreign key; Strong and weak entities, Case studies of ER modeling Generalization; specialization and aggregation. Converting an ER model into relational Schema.

UNIT – III Structured Query Language

Relational Algebra : select, project, cross product different types of joins (inner join, outer joins, self join); set operations, Simple and complex queries using relational algebra. Integrity constraints: Not null, unique, check, primary key, foreign key.

UNIT – IV Relational Database Design-

Normalization concept in logical model; Pitfalls in database design, update   anomalies: Functional dependencies, Join dependencies, Normal forms (1NF, 2NF, 3NF). Boyce Codd Normal form, Decomposition, Multi-Valued Dependencies, 4NF, 5NF.

UNIT – V INTRODUCTION TO ORACLE :

Introduction to Commercial database query language, SQL & its environment. SQL as a data definition language- creating tables, altering tables, drop tables. SQL as data manipulation language- Inserting, Deleting ,Retrieving and updating data in a table. SQL as query language. Introduction to SQL constructs (SELECT…FROM, WHERE… GROUP BY… HAVING… ORDERBY….), Temporary tables, Nested queries

Suggested Books :

1. Data base system   : Korth & Silberschatz.
2. Data Base Management System   : Alexies & Mathews [Vikas publication
3. An Introduction to Data base System   : C.J. Date
4.. Data Base Management System   : Raguramakrishnan.

BCA - 203
Programming in C++ & Visual C++

Max Marks : 100

Min. Marks : 40

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT - I

Overview of Object Oriented Concepts

Need for Object Oriented programming; Procedural Languages; The Object Oriented approach; advantages of Object Oriented Programming; characterization of Object Oriented Languages; Objects; Classes; inheritance; reusability; New data types; Polymorphism and overloading.

UNIT - II
Object Classes and Inheritance

Object and Class, Using the class, class construct, class destructors, object as function argument, struct and classes, array as class member, operator overloading. Type of inheritance, Derive class, Base class. Access specifier: protected. Overriding, member function, String,

UNIT - III
Object Oriented Programming

In overview of C++ Programming; Loops and decisions; Structures and functions. Arrays and Pointers, Inheritance, Overloaded Function, Inline Function, Virtual Functions, pure virtual Functions Streams.

UNIT - IV
Object Oriented Design & Database

Object structure concepts; Object type; Attribute types; relationship type; Object behavioral concepts; Methodology for Object Oriented Design; Booch methodology Relational Vs Object Oriented Databases, The architecture of Object Oriented Databases.

UNIT - V

Introduction to VC++ - C under windows, Overview of VC++, VC++ workspace & projects, creating source code file, adding C++ code to a program.

Introduction to MFC - The part of VC++ programs, the application object, the main window object, the view object, the document object, Windows event oriented programming, what is device context.

RECOMMENDED BOOKS :

1. Object Oriented Programming : McGregor and Sykes S A, 1992 Van Nostrand.
2. The C++ Programming Language : Strustrp B,Addision Wasley.
3. Object Oriented Programming in C++ : Lafore R, Galgotia Publications.
4. Introduction to Object Oriented Programming : Witt KV, Galgotia Publications.
5. Object Oriented Programming : Blaschek G, Springer Verlag
6. Object Data Management : Cattel R, Addison Wasley.
7. Modern Database Systems : Kim W, ACM Press, Addision Wesley.

VC++

1. Visual C++ in Record time : Steven Holzner
2. Visual C++ Programming : Yashwant P. Kanetkar

BCA - 204
Computer Networking & Internet Technology

Max Marks : 100

Min. Marks : 40

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT - I
Introduction to Computer Networking-

Data Communication, Networks - Distributed Processing, Network Criteria, Applications; Protocols and Standards, Standard Organization, Line Configuration - Point to Point, Multi Point; Topology - Mesh, Star, Tree, Bus, Ring, Hibrid; Tansmission mode, Categories of Network - LAN, MAN, WAN, Inter Networks.

UNIT - II
The OSI Model -

The model - Layered architecture, functions of the layers-Physical layer, Data Link layer, Network layer, Transport layer, session layer, Presentation layer, Application layer; the TCP/IP reference model, comparison of TCP/IP & OSI, Novell Netware, Arpanet, NSFNET.

UNIT - III
Transmission of Digital Data -

Analog and Digital, digital data transmission - parallel transmission, serial transmission, DTE-DCE interface - data terminal equipment, data circuit terminating equipment, standards, modems- Transmission rate, Modem standards.

UNIT - IV

Introduction to Internet Technology - Architecture of Internet, Client server model, www, The concept of web publishing, The HTML Basics Review, Tables, frames, image maps, forms & Introduction to CGI Scripting.

UNIT - V

Scripting Language for Web Design :- What is java , Introduction to java applet, Adding applet to web page, JavaScript ,Structure of Java Script, Basic Commands of Java Script, dynamic html.

Cascading Style Sheets & Web Server – Defining styles within HTML tags. Features of Style sheet, Web server, Publishing website, Case Studies.

Recommended Books-
1. Introduction to Data communication & Networking - Behrouz & Forouzan
2. Computer Networking - Andres & Tanenbaum
3. Web publishing - Monica D'Souza & Jude D'Souza.
4. www Designing with HTML - C Xavier

BCA - 205
LINUX

Max Marks : 50

Min. Marks : 20

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not scientific calculator.

UNIT - I
Introduction to Linux

Introduction to Linux system, History and Emergence, Features of Linux system, Different Linux distributions, Hardware Requirements for the different versions of Linux, Architecture of the Linux, Features of the Kernel and Kernel Shell relationship.

Linux File System

Features of Linux file system, File types and permissions, Getting started, Logging in /out with the concept of home directory. File operations and links, Commonly used commands like GREP, Find, who, ls, pwd, mv, ls, cd, df, cat, head, tail, rm, sort, grip, ps, whoami, chmod, chonn,gunzip,date, bc, tar.

UNIT - II
Text Processing

Introduction to Text Processing, Vi editor, Vi Features, Vi Commands, Yanking, Running shell commands, from within Vi, Command macros, Set showmode, Set Auto Indent, Set number, Introduction to Exrc file.Emacs editor, Emacs feature, Emacs commands, Using cut, paste and copy in Emacs, Saving buffer in Emacs.

UNIT - III
Shell Programming

Introduction to Shell & Shell Programming: Features of a Shell, Different types of a Shell, Why use more shell, Shell treatment to the command line, the environment, set, setenv, path, home, ifs, mail, ps1, ps2, term, log name, profile, sty, profile file, login/logout file, setting environment, simple shell programs, for... do, case, do while construct.

UNIT - IV
X-windows

x-windows: what is X-windows, Microsoft windows verses x-windows, windows manager, FVWM and FVWM95, twn, the client server model of x-windows, starting and stopping an X-window session.

GNOME & KDE

Using the GNOME & KDE desktop environment : starting the GNOME desktop environment, the GNOME panel, using the main system menu, the Gnome file manager, getting help in GNOME, using the Gnome control. A history of KDE project, starting the KDE desktop environment, exploring the Kde desktop, KDE main system menu, using file manager window, setting wallpaper, screen savers in KDE

UNIT - V
System Administration of Linux

Installation & system Administration of Linux: responsibilities of a system administrator, startup and shutdown process, inittub and profile file importance, security file access permission, user and group related jobs, managing disk space, managing file system, backup and restart process. PRC- installation requisite, minimum hardware requirement for Red Hat Linux, Hard Disk Partitioning, installation of Red Hat Linux Installation of Printer, Scanner and Peripheral devices in Linux.

REFERENCES:

Mastering Linux
Complete Reference Linux.   : BPB publication

BCA - 206
Principles of Management

Max Marks : 50

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

UNIT - I
MANAGEMENT:

Concept, Nature and Scope of management. The evolution of Management thought, Approaches of management, New classical school, Modern organizational Theories, Behavourial Approach and Systems Approach, Tasks of a professional Manager, Responsibilities of a Professional Manager, Management Systems and Processes, Managerial Skills.

UNIT - II
PLANNING:

Significance, Objectives Types of Plans, Strategies & Polices, Proceedings methods & rules Project Management, Planning Evaluation, Feasibility Report, Planning Process Planning under systems approach.

UNIT-III
ORGANIZING

Significance, objectives, Major approaches to organizational theory, Organizational Structure and Design, the organizational Process, span of control or Departmentation, Delegation of Authority & Inter Department Coordination, Decentralization, Determinants of effective organizing, staffing, selection, appraisal and development of Managers.

UNIT-IV
DIRECTING

Significance and issue in managing human factors. Motivation, nature and significance theories and techniques, Leadership styles and influence process, Leadership challenges.

Managerial Communication, definition & Significance, Types of communication, the process and barriers, Building effective communication system, Supervision nature and function, determination of effective supervision.

UNIT-V
CONTROLLING & DECISION MAKING

Definition and elements, Control Techniques, Coordination and determinants of an effective control system.

Organizational, Context of Decisions, Decision Making Models, Decision Making Techniques and Processes.

Recommended Books:

1. Principles of Management by Terry Franklin
2. Essentials of Management by Koontz H. O Donnell ;Tata McGraw Hill, New Delhi
3. Management by Stoner J.A.F ; prentice Hall, New Delhi

BCA - 206
B. Foundation Course: As prescribed by University for B.Sc. Courses

PRACTICAL WORK
BCA-205(B) Shell Programming in Linux/Unix

Scheme of Examination:-

1. Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Programme 1	-	10
Programme 2	-	10
Viva	-	15
[Practical Copy + Internal Record]	-	15
Total	-	**50**

2. In every program there should be comment for each coded line or block of code

3. Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4. All the following programs or a similar type of programs should be prepared

List of Practical

1. Change your shell environment – path, home, ifs, mail, ps1, ps2, term, logname
   i)   at commandline
   ii)   at shell level
   iii)   at login level

2. Change the wallpaper, screensaver in GNOME, KDE

3. Install Linux with following specifications – usename, password, partitions for various directories such as /etc, /home, etc

4. Add a user and password, change the password

5. Add & remove a group

6. Create partitions on your disk.

7. Install and configure (i) printer   (ii) scanner

Using vi editor do the following exercises

1. In a file
   - i) replace the words 'has' with 'has not '.
   - ii) Locate nth character
   - iii) Sort lines 21 to 40
2. In a file copy/cut and paste following text-
   - i At ith line, n lines to jth line .
   - ii Yank a few words
   - iii Cut and paste n words to ith position in lth line
3. Open two files 'txtfile' and 'newfile' and copy/cut 5 lines from txtfile and paste them in newfile using vi editor.
4. Open 'txtfile' and copy/cut following and paste to the 'newfile'
   - i ith to the last line in it
5. Create macro
   - i to paste your name at any position in the file.
   - ii to map the 1st function key to search for "loop" and copy into the buffer 'a' all text following it up to but not including the string "end".
   - iii to remove all leading spaces in a file
   - iv to save and quit vi editor in input mode

Write commands

- i. List all files that match a class.
- ii. List all files that do not match a class.
- iii. Change the file permissions
- iv. Configure or set characteristics of your terminal. Describe any 3.
- v. Display the lines in a file that contain a particular word.
- vi. Append the contents of two files in a file JABC.
- vii. Count the number of files in a directory.

Write shell programs

- i. Display all the users currently logged in detail with column headers.
- ii. List all files in current directory and save the list in a file ABC. Also save the contents of the files in ABC and display the contents in ABC in sorted order.
- iii. Sort the contents of a file ABC and save it in OABC.
- iv. Display all the users currently logged in detail with column headers.
- v. To save current date & time, number of files & directories in the current directory and contents of all the files to a single file NFL.
- vi. To input a number and test whether it is +ve, -ve or zero.
- vii. To test whether a filename is a regular file or a directory or of other type.
- viii. To list only the directories in current path.
- ix. To print the greatest of three numbers.
- x. To print 12 terms of Fibonacci series.
- xi. To display all users currently logged in & also check a particular user every 30 seconds until he logs in.
- xii. To save current date & time, number of files in the current directory and contents of all the files matching a pattern to a single file NPFL.
- xiii. To display particular messages depending on the weekday.
- xiv. To display common messages for following group of days-Monday & Wednesday, Tuesday & Thursday and Friday & Saturday and other day.
- xv. To accept a string from the terminal and echo a suitable message if it doesn't have at least 9 characters.
- xvi. Write a Shell Script to find the factorial of a number.
- xvii. Write a Shell Script to swap two numbers using third variable.
- xviii. Write a Shell Script to print prime numbers between 1 to 20.
- xix. Write a Shell Script to greatest of three numbers.

xx.   Write a Shell Script to sort the contents of a file XYZ and save it in BCAII

xxi. Write a Shell Script to display mathematical table of any number in the format E x :- 3*1=3.

PRACTICAL WORK
BCA-207 DBMS (Oracle, SQL)

1 Scheme of Examination:-
Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Programme 1 (Oracle)	-	10
Programme 2 (Oracle)	-	10
Viva (Oracle + project)	-	25
[Practical Copy +		
Practical Sessional]	-	15
Project Completeness	-	15
Project Report	-	15
Project Presentation	-	10
Total	-	**100**

2 In every program there should be comment for each coded line or block of code

3 practical files should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared

List of Practical
1.   Using the following database,
   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   StaffJoins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

Write SQL statements for the following –
   a.   Create the above tables with the given specifications and constraints.
   b.   Insert about 10 rows as are appropriate to solve the following queries.
   c.   List the names of the teachers teaching computer subjects.
   d.   List the names and cities of all staff working in your college.
   e.   List the names and cities of all staff working in your college who earn more than 15,000
   f.   Find the staffs whose names start with 'M' or 'R' and ends with 'A' and/or 7 characters long.
   g.   Find the staffs whose date of joining is 2005.
   h.   Modify the database so that staff N1 now works in C2 College.
   i.   List the names of subjects, which T1 teaches in this session or all sessions.
   j.   Find the classes that T1 do not teach at present session.
      a.   Find the colleges who have most number of staffs.
      b.   Find the staffs that earn a higher salary who earn greater than average salary of their college.
      c.   Find the colleges whose average salary is more than average salary of C2
      d.   Find the college that has the smallest payroll.
      e.   Find the colleges where the total salary is greater than the average salary of all colleges.
      f.   List maximum, average, minimum salary of each college

a. List the names of the teachers, departments teaching in more than one department.
b. Acquire details of staffs by name in a college or each college.
c. Find the names of staff that earn more than each staff of C2 College.
d. Give all principals a 10% rise in salary unless their salary becomes greater than 20,000 in such case give 5% rise.
e. Find all staff that do not work in same cities as the colleges they work.
f. List names of employees in ascending order according to salary who are working in your college or all colleges.
   a. Create a view having fields sname, cname, dept, DOJ, and post
   b. Create a view consisting of cname, average salary and total salary of all staff in that college.
   c. Select the colleges having highest and lowest average salary using above views.
   d. List the staff names of a department using above views.

2.   Create the following database,
   Enrollment (enrollno, name, gender, DOB, address, phone)
   Admission (admno, enrollno, course, yearsem, date, cname)
   Colleges (cname, city, address, phone, afdate)
   FeeStructure (course, yearsem, fee)
   Payment (billno, admno, amount, pdate, purpose)
a. Create the above tables with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. Get full detail of all students who took admission this year class wise
d. Get detail of students who took admission in Bhilai colleges.
e. Calculate the total amount of fees collected in this session
   i) By your college ii) by each college iii) by all colleges
   a. List the students who have not payed full fee
      i) in your college ii) in all colleges
   b. List the number of admissions in your class in every year.
   c. List the students in the session who are not in the colleges in the same city as they live in.
   d. List the students in colleges in your city and also live in your city.

3.   Create the following database,
   Subjects (paperid, subject, paper, papername)
   Test (paperid, date, time, max, min)
   Score (rollno, paperid, marks, attendence)
   Students (admno, rollno, class, yearsem)
   a. Create the above tables with the given specifications and constraints.
   b. Insert about 10 rows as are appropriate to solve the following queries.
   c. List the students who were present in a paper of a subject.
   d. List all roll numbers who have passed in first division.
   e. List all students in BCA-II who have scored higher than average
      i) in your college   ii) in every college
   f. List the highest score, average and minimum score in BCA-II   i)   in   your college ii) in every college

4.   Using the following database
   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   StaffJoins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

Write SQL statements for the following –
a. Create the above tables with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. List the names of the teachers teaching computer subjects.
d. List the names and cities of all staff working in your college.
e. List the names and cities of all staff working in your college who earn more than 15,000

5. Using the following database
    Colleges (cname, city, address, phone, afdate)
    Staffs (sid, sname, saddress, contacts)
    StaffJoins (sid, cname, dept, DOJ, post, salary)
    Teachings (sid, class, paperid, fsession, tsession)
    Subjects (paperid, subject, paperno, papername)

a. Find the staffs whose names start with 'M' or 'R' and ends with 'A' and/or 7 characters long.
b. Find the staffs whose date of joining is 2005.
c. Modify the database so that staff N1 now works in C2 college.
d. List the names of subjects which T1 teaches in this session or all sessions.

6. Using the following database
    Colleges (cname, city, address, phone, afdate)
    Staffs (sid, sname, saddress, contacts)
    StaffJoins (sid, cname, dept, DOJ, post, salary)
    Teachings (sid, class, paperid, fsession, tsession)
    Subjects (paperid, subject, paperno, papername)
a. Find the classes that T1 do not teach at present session.
b. Find the college who have most number of staffs.
c. Find the staffs who earn a higher salary who earn greater than average salary of their college.
d. Find the colleges whose average salary is more than average salary of C2
e. Find the college that has the smallest payroll.
f. Find the colleges where the total salary is greater than the average salary of all colleges.
g. List maximum, average, minimum salary of each college

7. Using the following database
    Colleges (cname, city, address, phone, afdate)
    Staffs (sid, sname, saddress, contacts)
    StaffJoins (sid, cname, dept, DOJ, post, salary)
    Teachings (sid, class, paperid, fsession, tsession)
    Subjects (paperid, subject, paperno, papername)

a. Find the classes that T1 do not teach at present session.
b. List the names of the teachers, departments teaching in more than one departments.
c. Acquire details of staffs by name in a college or each college.
d. Find the names of staff who earn more than each staff of C2 college.
e. Give all principals a 10% rise in salary unless their salary becomes greater than 20,000 in such case give 5% rise.
f. Find all staff who donot work in same cities as the colleges they work.
g. List names of employees in ascending order according to salary who are working in your college or all colleges.
8. Using the following database
    Colleges (cname, city, address, phone, afdate)

Staffs (sid, sname, saddress, contacts)
StaffJoins (sid, cname, dept, DOJ, post, salary)
Teachings (sid, class, paperid, fsession, tsession)
Subjects (paperid, subject, paperno, papername)

a. Find the classes that T1 do not teach at present session.
b. Create a view having fields sname, cname, dept, DOJ, and post
c. Create a view consisting of cname, average salary and total salary of all staff in that college.
d. Select the colleges having highest and lowest average salary using above views.
e. List the staff names of a department using above views.

9. Enrollment (enrollno, name, gender, DOB, address, phone)
Admission (admno, enrollno, course, yearsem, date, cname)
Colleges (cname, city, address, phone, afdate)
FeeStructure (course, yearsem, fee)
Payment (billno, admno, amount, pdate, purpose)
a. Create the above tables with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. Get full detail of all students who took admission this year classwise
d. Get detail of students who took admission in Bhilai colleges.
e. Calculate the total amount of fees collected in this session
    i) by your college ii) by each college iii) by all colleges

10. Enrollment (enrollno, name, gender, DOB, address, phone)
Admission (admno, enrollno, course, yearsem, date, cname)
Colleges (cname, city, address, phone, afdate)
FeeStructure (course, yearsem, fee)
Payment (billno, admno, amount, pdate, purpose)
a. List the students who have not payed full fee
        i) in your college ii) in all colleges
b. List the number of admissions in your class in every year.
c. List the students in the session who are not in the colleges in the same city as they live in.
d. List the students in colleges in your city and also live in your city.

11. Subjects (paperid, subject, paper, papername)
Test (paperid, date, time, max, min)
Score (rollno, paperid, marks, attendence)
Students (admno, rollno, class, yearsem)
a. Create the above tables with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. List the students who were present in a paper of a subject.
d. List all roll numbers who have passed in first division.
e. List all students in MCA-II who have scored higher than average
    i) in your college   ii) in every college
f. List the highest score, average and minimum score in MCA-II
        i) in your college ii) in every college

The Project should be done by individual student. Format of the student project report on completion of the project.

- Cover page as per format
- Certificate of Approval
- Certificate of project guide/Center Manager

- Certificate of the company/Organization
- Certificate of Evaluation
- Declaration / Self Certificate
- Acknowledgement

In the "Acknowledgement" page, the writer recognizes his /her indebtedness for guidance and assistance of the thesis/report adviser and other members of the faculty. Courtesy demands that he/she also recognize specific contributions by other persons or institutions such as libraries and research foundations. Acknowledgements should be expressed simply, tastefully, and tactfully.

- Main Report

  - ✓ Contents
  - ✓ Objectives & Scope of the project
  - ✓ Definition of problem
  - ✓ System Analysis
  - ✓ Details of Hardware and Software used
  - ✓ System Design

    Database design
    Decision tree/decision table
    Data flow diagram
    E-R Diagram
    Procedural design – Algorithms
    User interface design
  - ✓ Reports Generated
  - ✓ Conclusion
  - ✓ Bibliography
  - ✓ Soft copy of the project on CD/Floppy.

Formats of various certificates and formatting styles are as:

2.   **Project report Cover Format**:

A
Project Report
On

Title of the Project Report
(Times New Roman. Italic, Font Size=24)
Submitted in partial fulfillment of the requirements for the award of degree
Bachelor of Computer Application-II Year

From
Pt.Ravishankar Shukla University Raipur (C.G.)
(Bookman Old Style, 16 Point, Center)
Year : xxxx

Logo of college

Guide   Submitted by:
(Guide Name)   (Student's Name)
                                                         Roll No:

Submitted to
(College Name)
Pt.Ravishankar Shukla University Raipur (C.G.)

2. Certificate of Approval by Head of the Department/ Principal in letter head

CERTIFICATE OF APPROVAL

This is to certify that the Project work entitled " _____ " is carried out by Mr/Ms/Mrs _____ , a student of BCA – II year at (**College Name**) is hereby approved as a credible work in the discipline of Computer Science & Information Technology for the award of degree of **Bachelor of Computer Application -II year** during the year _____ **from Pt. Ravishankar Shukla University, Raipur (CG).**

(Head/ Principal Name)

3. Certificate from the Guide in letter head

CERTIFICATE

This is to certify that the Project work entitled " _____ " Submitted to the (**College Name**) by Mr/Ms/Mrs _____ Roll No_____ , in partial fulfillment for the requirements relating to nature and standard of the award of **Bachelor of Computer Application-II Year** degree by , **Pt. Ravishankar Shukla University, Raipur (CG)** for the academic year 20___ - 20___ .

This project work has been carried out under my guidance.

(Guide Name)

4. Certificate of the Company or Organisation from where the Project is done from the Project Manager or Project guide.

5. Certificate of evaluation in the department letter head

CERTIFICATE OF EVALUATION

This is to certify that the Project work entitled " _____ " is carried out by Mr/Ms/Mrs _____ , a student of BCA – II year at (**College Name**), after proper evaluation and examination, is hereby approved as a credible work in the discipline of Computer Science & Information Technology and is done in a satisfactory manner for its acceptance as a requisite for the award of degree of **Bachelor of Computer Application-II year** during the year _____ from **Pt. Ravishankar Shukla University, Raipur (CG).**

Internal Examiner

External Examiner

6. Declaration of Student / Self Certificate

DECLARATION

This to certify that the project report entitled " _____ ", which is submitted by me in the partial fulfillment for the award of the degree of **Bachelor of Computer Application-II year, (College Name),** comprises the original work carried out by me.

I further declare that the work reported in this project has not been submitted and will not be submitted, either in part or in full for the award of any other degree or diploma in this Institute or any other Institute or University.

Place :

Date :

(Name)

(Roll No)

PRACTICAL WORK   BCA II
BCA-208 Programming in C++ & Visual C++

1 Scheme of Examination:-

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Programme 1	-	20
Programme 2	-	20
Visual C++	-	10
Viva	-	25
[Practical Copy + Internal Record]	-	25
Total	-	**100**

2 In every program there should be comment for each coded line or block of code

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared

List of Practical

LOOPS, DECISIONS, NESTED METHOD, MEMBER FUNCTION DEFINED OUTSIDE CLASS BODY:

1.   Write program to generate following pattern

```
a) A B C D E F G            c)        *
   A B C   E F G                    *   *
   A B       F G                  *   *   *
   A           G
```

```
b) 1                       d)      1
   1 2                            1 2 1
   1 2 3                         1 3 3 1
   1 2 3 4                      1 4 6 4 1
```

2.   Write member functions which when called asks pattern type; if user enters 11 then a member function is called which generates first pattern using for loop. If user enters 12 then a member function is called which generates first pattern using while loop. If user enters 13 then a member function is called which generates first pattern using do-while loop. If user enters 21 then a member function is called which generates second pattern using for loop and so on.

3.   Write program to display number 1 to 10 in octal, decimal and hexa-decimal system.

4.   Write program to display number from one number system to another number system. The program must ask for the number system in which you will input integer value then the program must ask the number system in which you will want, output of the input number after that you have to input the number in specified number system and program will give the output according to number system for output you mentioned earlier.

Array

5.   Write a program using function to add, subtract and multiply two matrices of order 3x3. You have to create one function for addition, which accepts three array arguments. First two array arguments are matrices to add and third matrix is destination

where the resultant of addition of first two matrixes is stored. In similar way create functions for matrix subtraction and multiplication.

6.   Create a single program to perform following tasks without using library functions:

a)   To reverse the string accepted as argument.

b)   To count the number of characters in string passed as argument in form of character array.

c)   To copy the one string to other string; passed as arguments in form of source character array and destination character array without using library function.

d)   To count no. of vowels, consonants in each word of a sentence passed as argument in form of character array.

Class, Object, Array of object, Object Using Array

7.   Create a class Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare an object of class student. Provide facilities to input data in data members and display result of student.

8.   Create a class Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare array of object to hold data of 3 students. Provide facilities to display result of all students. Provide also facility to display result of specific student whose roll number is given.

9.   Create a class Sarray having an array of integers having 5 elements as data member provide following facilities:

a)   Constructor to get number in array elements. b) Sort the elements. c) Find largest element

b)   Search for presence of particular value in array element.

Static member function

10.   Create a class Simple with static member functions for following tasks:

a)   To find factorial by recursive member function.

b)   To check whether a no. is prime or not.

c)   To generate Fibonacci series up to requested terms.

Object as argument to function, function returning object

11.   Write program-using class having class name Darray. Darray has pointer to pointer to integer as data member to implement double dimension dynamic array and provide following facilities:

a)   Constructor to input values in array elements.

b)   Input member function to get input in array element

c)   Output member function to print element value

d)   Add member function to perform matrix addition using objects.

e)   Subtract member function to perform matrix subtraction using objects.

f)   Multiply member function to perform matrix multiplication using objects

12.   Write program to create class complex having data members to store real and imaginary part. Provide following facilities:

a) Add two complex no. using objects.   b) Subtract two complexes no. using objects.

c) Multiply two complexes no. using objects. d) Divide two complex no. using objects.

Friend Function

13.   Create class Polar having data members radius and angle. It contains member functions for taking input in data members and member function for displaying value of data members. Class Polar contains declaration of friend function add which accepts two objects of class Polar and returns object of class Polar after addition. Test the class using main function and objects of class Polar.

14.   Write program to create class distance having data members feet and inch (A single object will store distance in form such as 5 feet 3 inch). It contains member functions for taking input in data members and member function for displaying value of data

members. Class Distance contains declaration of friend function add which accepts two objects of class Distance and returns object of class Distance after addition. Class Distance contains declaration of another friend function Subtract that accepts two objects of class Distance and returns object of class Distance after subtraction. Test the class using main function and objects of class Distance.

15. Write a program to create class Mother having data member to store salary of Mother, create another class Father having data member to store salary of Father. Write a friend function, which accepts objects of class Mother, and Father and prints Sum of Salary of Mother and Father objects.

Friend Class

16. Write a program to create class Mother having data member to store salary of Mother, create another class Father having data member to store salary of Father. Declare class Father to be friend class of Mother. Write a member function in Father, which accepts object of class Mother and prints Sum of Salary of Mother and Father Objects. Create member function in each class to get input in data member and to display the value of data member.

Static Data Member

17. Create a class Counter having a static data member, which keeps track of no. of objects created of type Counter. One static member function must be created to increase value of static data member as the object is created. One static member function must be created to decrease value of static data member as the object is destroyed. One static member function must be created to display the current value of static data member. Use main function to test the class Counter.

STRUCTURE AND CLASS

18. Define structure student. Structure student has data members for storing name, rollno, name of three subjects and marks. Write member function to store and print data.

COPY CONSTRUCTOR, CONSTRUCTOR OVERLOADING, THIS POINTER, CONSTRUCTOR WITH DEFAULT ARGUMENT.

19. Write program to create a class Polar which has data member radius and angle, define overloaded constructor to initialize object and copy constructor to initialize one object by another existing object keep name of parameter of parameterized constructor same as data members. Test function of the program in main function.

20. Write program to create a class Polar which has data member radius and angle, use constructor with default arguments to avoid constructor overloading and copy constructor to initialize one object by another existing object keep name of parameter of parameterized constructor same as data members. Test functioning of the program in main function

FUNCTION OVERLOAD, REFERENCE VARIABLE, PARAMETER PASSING BY ADDRESS, STATIC FUNCTION

21. Write a class having name Calculate that uses static overloaded function to calculate area of circle, area of rectangle and area of triangle.

22. Write a class ArraySort that uses static overloaded function to sort an array of floats, an array of integers.

23. Write a program using class, which uses static overloaded function to swap two integers, two floats methods use reference variable.

24. Write a program using class, which uses static overloaded function to swap two integers; two floats methods use parameter passing by address.

STRING, POINTER, AND OPERATOR OVERLOADING

25. Create class String having pointer to character as data member and provide following Facilities:

a) Constructor for initialization and memory allocation.
b) Destructor for memory release.
c) Overloaded operators + to add two string object.

d)   Overloaded operator = to assign one string object to other string object.

e)   Overloaded operator = = to compare whether the two string objects are equal or not.

f)   Overloaded operator < to compare whether first-string object is less than second-string object.

g)   Overloaded operator > to compare whether first-string object is greater than second-string object or not.

h)   Overloaded operator <= to compare whether first string object is less than or equal to second string object or not

i)   Overloaded operator >= to compare whether first string object is greater than or equal to second string object.

j)   Overloaded operator != to compare whether first string object is not equal to second string object or not.

k)   Overloaded insertion and extraction operators for input in data member and display out put of data members.

26.   Create a class Matrix having data member double dimension array of floats of size 3x3. Provide following facilities:

a)   Overloaded extraction operator for data input.

b)   Overloaded insertion operator for data output.

c)   Overloaded operator + for adding two matrix using objects.

d)   Overloaded operator – for subtracting two using matrix objects.

e)   Overloaded operator * for multiplying two using matrix objects.

OPERATOR OVERLOADING WITH FRIEND FUNCTION

27.   Create a class Polar having radius and angle as data members. Provide following facilities:

a)   Overloaded insertion and extraction operators for data input and display.

b)   Overloaded constructor for initialization of data members.

c)   Overloaded operator + to add two polar co-ordinates using objects of class Polar.

28.   Create class DegreeCelsius having a single data member to hold value of temperature in degree Celsius. Provide following facilities:

a)   Overloaded operator ++ which will increase value of data member by 1 (consider postfix and prefix operator overloading).

b)   Overloaded operator -- which will decrease value of data member by 1 (consider postfix and prefix operator overloading).

c)   Overloaded insertion and extraction operators for input in data member and display value of data member.

OPERATOR OVERLOADING AND DATA TYPE CONVERSION

29.   Create a class Polar that contains data member radius and angle. Create another class Cartesian in the same program and provide following facilities:

a)   It should be possible to assign object of polar class to object of Cartesian class.

b)   It should be possible to assign object of Cartesian class to object of polar class.

30.   Create a class Fahrenheit that contains a data member to hold temperature in Fahrenheit. Create another class Celsius that contains a data member to hold temperature in Degree Celsius; in the same program and provide following facilities:

a)   It should be possible to assign object of Fahrenheit class to object of Celsius class.

b)   It should be possible to assign object of Celsius class to object of Fahrenheit class.

c) It should be possible to compare objects of class Fahrenheit and Celsius to find out which object contains higher temperature.

VOID POINTER, POINTER AND POINTER TO OBJECT

31. Create a program having pointer to void to store address of integer variable then print value of integer variable using pointer to void. Perform the same operation for float variable.

32. Write program to find biggest number among three numbers using pointer and function.

33. Write swapping program to demonstrate call by value, call by address and call by reference in a single program.

34. Write program to Create a class Employee having data members to store name of employee, employee id, salary. Provide member function for data input, output. Use Pointer to object to simulate array of object to store information of 3 employees and test the program in function main.

INLINE FUNCTION.

35. Write a program using inline function to calculate area of circle.

36. Write a program using inline function to find minimum of two functions. The inline function should take two arguments and should return the minimum value.

FUNCTION TEMPLATE

36. Write a program using function template to sort an array of floats, an array of integers.

37. Write a program using function template to swap two integers, two floats methods use reference variable.

TEMPLATE CLASS

37. Write a program using class template to simulate stacks of integer and stacks of float.

38. Write a program using class template to simulate linked-list of integer and linked list of floats.

INHERITANCE

39. Create a class account that stores customer name, account number and type of account. From this derive the classes cur_acct and sav_acct to make them more specific to their requirements. Include necessary member functions in order to achieve the following tasks:

a) Accept deposit from customer.
b) Display the balance
c) Computer and deposit interest.
d) Permit withdrawal and update the balance.
e) Check for the minimum balance, impose penalty, necessary and update the balance.

40. Create a class circle with data member radius; provide member function to calculate area. Derive a class sphere from class circle; provide member function to calculate volume. Derive class cylinder from class sphere with additional data member for height and member function to calculate volume.

41. Consider an example of declaring the examination result. Design three classes:- student, exam and result. The student class has data members such as that representing roll number, name of student. Create the class exam, which contains data members representing name of subject, minimum marks, maximum marks, obtained marks for three subjects. Derive class result from both student and exam classes. Test the result class in main function.

VIRTUAL AND PURE VIRTUAL FUNCTION

42. Create a base class shape having two data members with two-member function getdata (pure virtual function) and printarea (not pure virtual function). Derive classes triangle and rectangle from class shape and redefine member function printarea in both classes triangle and rectangle and test the functioning of classes using pointer to base class objects and normal objects.

FILE STREAMS

43. Write program to copy content of one file to other file removing extra space between words name of file should come from command line arguments.

44. Write program-using class and object i/o to store data about Books (Book Id, Book Title, Author, Price, Edition). Provide following facilities:

a) Addition of books.
b) Searching for availability of books if provided author.
c) Deletion of book information.
d) Updating on Title, Author, Price, Edition.

Visual C++

45. Write program for obtaining fibonacci series in workspace environment

46. Write program for multiple inheritance in VC++ inheritance using book example having different class book, Journals, Magazines, Newspaper.

47. Implement virtual function in VC++ inheritance.

48. Implement friend function in VC++

49. Write a simple program for event handling in VC++ environment.

50. Write a program in VC++ using MFC.

BCA301
CALCULUS & GEOMETRY

Max. Marks : 50

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

Calculus

Unit –I
The Reimann Integral, Existence of the Riemann Integral, Properties of Reimann Integrals, Fundamental Theorem of Integral Calculus.

Unit-II
Maxima and minima of functions of two and three variables. Langrange's method of undetermined multipliers.

Unit-III
Improper integrals, Meaning of integrals of type $\int_a^\infty f(x)\, dx$, $\int_a^b f(x)\, dx$ where $f(x)$ is not defined at a and/or b. Tests of convergence for improper integrals.

Geometry

Unit- IV
Equation to cone with given base, Generators of Cone, condition for three mutually perpendicular generators, Right Circular Cone, Equation of a cylinder.

Unit-V
Polar Coordinates, Polar equation to straight line, Circle. Polar equation of a Conic.

REFERENCE:

1.Calculus of two and more variables: G.S. Pandey & V.P. Saxena (Wiley Eastern)
2.Higher calculus   : P.L.Sharma
3.Vector Calculus & Geometry   : B.R.Thakur.

BCA301
DIFFERENTIAL EQUATIONS & FOURIER SERIES

Max Marks : 50

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

Unit –I

Concept of Differential equation. Recall of first order and first degree differential equations. Equation of first order but of higher degree. Homogeneous and exact differential equations.

Unit-II

Geometric representation, Family of curves and orthogonal trajectories. Linear differential equation with constant coefficients. Operational rules of D. Homogeneous linear equations.

Unit-III

Partial differential equations of first order, Standard forms, Linear partial differential equations of higher order with constant coefficients.

Unit- IV

Periodic Function, Fourier Sine and Cosine Series, Even and Odd Functions, Full Range and Half Range Fourier Series

Unit-V

Convergence of Fourier Series, Gibbs Phenomenon, Operations on Fourier Series, Applications of Fourier Series to Differential Equation

REFERENCE:

1.Introductory course in differential equations : D. A. Murray
2.Differential equations(Awkl Sameekaran) : B.P. Parashar & L.P. Rajpal
3.Differential equations and Fourier Series : H.K.Pathak

BCA 301
Computer System Architecture

Max Marks : 50

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific Calculator.

UNIT I

Data Representation – Data Types, Number System, Fixed Point Representation – 1's, 2's complements, Binary Fixed point representation, Arithmetic operation on Binary operation, Overflow & Underflow, Codes, ASCII, EBCDIC codes, Grey codes, Excess-3, BCD codes, Error detection & correcting codes.

UNIT II

Digital Logic Circuits – Logic Gates AND, OR, NOT, Gates & their truth tables, NOR, NAND & XOR Gates, Boolean algebra, Basic Boolean Law, Doorman's theorem, Map Simplification, Minimizing technique, K Map, Sum of product, Product of sums, Combinational & sequential Circuits Half adder & Full adder, Full Subtractor, Flip Flop – RS, D, JK & T Flip Flop, Shift register, RAM & ROM.

UNIT III

CPU organization, ALU & Control circuit, Idea about arithmetic circuits, Program control, Instruction sequencing, Introduction to Microprocessor, Microprocessor architecture, System buses, Registers, Program counter,, Block diagram of a Macro computer system, Microprocessor control signals, Interfacing Devices ,Introduction to Motherboard ,SMPS

UNIT IV

Input output organization, I/O Interface, Properties of simple I/O devices and their Controller, Isolated versus Memory mapped I/O, Modes of Data transfer, Synchronous & Asynchronous Data Transfer, Handshaking, Asynchronous serial transfer, I/O processor

UNIT V

Auxiliary memory - Magnetic drum, Disk & Tape, Semi conductor memories, Memory Hierarchy, Associative memory, Virtual memory, address space & memory space, Address mapping, Page table, Page replacement, cache memory, Hit ratio, Mapping Techniques, Writing into cache.

REFERENCE:
1. Computer System architecture   - M. Moris Mano

BCA - 302
Programming In JAVA

Max marks-100
Min marks – 40
Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT - I
Introduction : Genesis of java, importance to the Internet, overview of features.
OOP : OOP features, data types, control structures, arrays, methods and classes, nested & inner classes, string and String Buffer class, Wrapper Class, vectors,
UNIT-II
Inheritance : Basics type,, method Override, using abstract and final classes, using super.
Packages and Interfaces : Defined CLASSPATH, importing packages, implementing interface.

UNIT - III
Exception Handling : Fundamental: exception types, using try and catch, throwing exceptions, defined exceptions.
Multithreaded Programming : Java spread model, creating threads, and thread priorities, synchronization. Suspending resuming and stopping threads.

UNIT –IV
Input/Output: Basic Streams, Byte and Character Stream, predefined streams, reading and writing from console and files. Using standard Java Packages (lang,util,io)
Networking : Nasecs. TCP/IP client & server sockets, URL connection.
JDBC: Setting the JDBC connectivity with backend database.

UNIT-V
Applets : Fundamentals, life cycle, overriding update, HTML APPLET tag, passing parameters. Developing single applets.
Introduction to AWT : Window fundamentals, creating windowed, programs waking with graphics, using AWT controls, menus. Delegation event model, handling mouse and keyboard events.

BOOKS RECOMMENDED:
1. java complete reference   - by Patrick naughten & Mesut Scpddt. [TMH]
2. Java Primer   - by E.Balaguruswami
3. Java Programming   - Khalid Mughal

BCA - 303
OPERATING SYSTEM

Max marks-100

Min marks – 40

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT-I
Introduction

What is operating system, basic concept, terminology, batch processing, spooling, multiprogramming, time sharing, real time systems, protection, multiprocessor system, operating system as resource manager, process view point, memory management, process management, device management and information management, other views of operating system, historical, functional job control language and supervisor service control.

UNIT-II
Processor Management (CPU Scheduling)

Reviewing of multiprogramming concept, scheduling concept, basic concept, CPU I/O burst cycle process state, PCB (Programme Control Block) scheduling queries, schedulars, scheduling algorithms - performance criteria, first-come - first served shortest job - first priority, preemptive algorithm, round robin, multilevel queues and multilevel feedback queues, algorithm evolution, multiprocessor scheduling , separate system, coordinated job scheduling, master / slave scheduling.

UNIT-III
Memory Management

Preliminaries of memory management, memory handling in M/C, relocation, swapping and swap time calculation, multiple partitions, partitioned allocation MFT, fragmentation, MVT, compaction, paging, job scheduling implementation of page tables, shared page, virtual memory-overlays, concepts of virtual memory demand page, memory management and performance, page replacement and page replacement algorithms. Allocation algorithms. Storage hierarchy disk and drum scheduling - physical characteristics fcfs scheduling SCAN, short of seek time first disk scheduling algorithms sector queuing.

UNIT - IV
Information Management (File System)

File concept, file type, typed based system, disk based system, general model of file system, file directory maintenance, symbolic file system, basic file system, physical file system, file support device directory, access methods free space management contiguous, linked allocation and indexed allocation performances.

UNIT V
Dead Locks

The Dead Lock problem - Dead Lock definition, Dead Lock detection, detection algorithm usage, Dead Lock characterization, resource allocation graph, Dead Lock prevention, mutual exclusion, hold and wait, no preemption and circular wait, dead lock avoidance-bankers algorithm. Recovery from Dead Lock process termination, resource preemption, combined approach to Dead Lock handling.

BOOKS RECOMMENDED :
1. **Principles of Operating System**   - Peterson.
2. **Operating System**   - Mandinick & Donovan.

BCA (Third Year) : BCA - 304
Software Engineering

Max marks-100

Min marks – 40

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Unit 1 : Introduction to Software Engineering
  e. Definition
  f. Need and Software problem
  g. Software Crises
  h. Software Engineering Problem
    1. Fundamental Problem
    2. Important Quality of Software Product
  i. Software Engineering Approach
    1. Phase Development Process
    2. Life Cycle of Software
  j. Principles Of Software Engineering
  k. Software Development Process Model
    1. Waterfall model
    2. Spiral Model
    3. Prototype Model
    4. Iterative Model

Unit 2 : Project Management
  a. The Phase Management Process
  b. Software Metrics
    1. Size Oriented Metrics
    2. Function Oriented Metrics

Unit 3 : Software Requirement and Specification
  a. Introduction and Need of SRS
  b. Structured Analysis
    1. Data Flow Diagram
    2. Context Diagram
    3. Data Dictionary

Unit 4 : Software Design & Coding
  f. Principle of Software Design
    1. Partitioning
    2. Abstraction
    3. Top Down and Bottom up Strategies
  g. Concept of Module
    1. Coupling
    2. Cohesion
  h. Structured Chart
  i. Coding – a. Rules of Good programming Style
              b. Code Verification

Unit 5 : Software Testing and Maintenance
  a. Definition
  b. Testing Fundamentals
     Error, Fault, Failure
  c. Test Oracles
  d. Types of Testing
    1. Black Box Testing
    2. White Box Testing
  e. Level of testing- Unit, Integration, System, Acceptance
  f. Introduction of Maintenance

Books
  1. Software Engineering by Roger Pressmen

BCA - 305
MULTIMEDIA TOOLS AND APPLICATIONS

Max marks-50

Min marks – 20

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT–I

Multimedia: Needs and areas of use, Development platforms for multimedia – DOS, Windows, Linux. Identifying Multimedia elements – Text, Images, Sound, Animation and Video, Making simple multimedia with PowerPoint.

Text – Concepts of plain & formatted text, RTF & HTML texts, using common text preparation tools, Conversion to and from of various text formats, using standard software, Object Linking and Embedding concept, Basics of font design, overview of some fonts editing and designing tools, Understanding & using various text effects.

Images – importance of graphics in multimedia, Vector and Raster graphics, image capturing methods – scanner, digital camera etc. various attributes of Images – size, color, depth etc, Various Image file format – BMP, DIB, EPS, CIF, PEX, PIC, JPG, TGA, PNG and TIF format – their features and limitations, graphic file formats conversions, processing images with common software tools such as Photoshop, Paint Shop pro, Corel draw etc..

UNIT-II

Sound: Sound and it Attributes, Mono V/s Stereo sound, Sound channels, Sound and its effect in multimedia, Analog V/s Digital sound, Basics of digital sounds-Sampling, Frequency, Sound Depth, Channels, Sound on PC, Sound standards on PC, Capturing and Editing sound on PC, Overview and using some sound recording, editing software. Overview of various sound file formats on PC – WAV, MP3, MP4, Ogg Vorbose etc.

Animation: Basics of animation, Principle and use of animation in multimedia, Effect of resolutions, pixel depth, Images size on quality and storage. Overview of 2-D and 3-D animation techniques and software- animation pro, 3D studio & Paint Shop pro animator.

Animation on the Web – features and limitations, creating simple animations for the Web using GIF Animator and Flash.

UNIT–III

Video: Basics of Video – Analog and Digital Video, How to use video on PC. Introduction to graphics accelerator cards, DirectX Introduction to AV/DV and IEEE1394 cards , Digitization of analog video to digital video, Interlacing and non-interlacing, Brief note on various video standards – NTSC, PAL, SECAM, HDTV, Introduction to video capturing Media & instrument – Videodisk, DVCAM, Camcorder, Introduction to digital video compression techniques and various file formats – AVI, MPEG, MOVE Real Video.

Brief Introduction to video editing and movie making tools – Quick time, video for windows & Adobe premier.

UNIT–IV

Authoring tools for CD Based Multimedia: Type of multimedia authoring tools, key factors of selecting CD based multimedia authoring tools, Planning and distribution of a multimedia project. Multimedia development team & skills requirement, Stages in designing & producing multimedia products for CD, Testing of product, distribution of multimedia product, various formats of CD's and DVD's.

UNIT – V

Multimedia on the Web: Bandwidth relationship, broadband technologies, Text in the web – Dynamic and embedded font technology, Audio on the Web – Real Audio and MP3/MP4, Audio support in HTML, Graphics – HTML safe color palate, Interlaced V/s Non interlaced model, Graphics support in HTML, Image Map, Video on the Web – Streaming video, Real Video, MPEG and SMIL, Virtual Reality on the Web.

TEXT AND REFERENCE BOOKS :

1 Multimedia: Making It Work (4th Edition) – by Tay Vaughan, Tata Mcgraw Hills.
2 Multimedia In Action – James E Shuman – Vikas Publishing House.
3 Multimedi Basics – Volume – 1 Technology, Andreas Holzinger, Firewall Media(Laxmi Publications Pvt. Ltd) New Delhi.

FINANCIAL MANAGEMENT & ACCOUNTANCY

Max marks-50

Note : The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not Scientific calculator.

UNIT - I

1. Financial Accounting :
   Meaning and Nature, Accounting Principles underlying the preparation of financial statements.
2. Preparation of Financial Statements :
   A Synoptic view-Profit and Loss account, Balance Sheet

UNIT - II

3. Financial statement Analysis
   Ratio analysis (Liquidity, Solvency, Profitability, Efficiency), Statement of Changes in financial position-working capital basis.
4. Conceptual Framework of Cost Accounting
   Meaning nature and need of cost accounting, Elements of cost, Preparation of cost – sheet, Cost concept –Fixed and variable costs, sunk costs, Out of pocket costs, Relevant and irrelevant costs, Opportunity and imputed costs.

UNIT - III

5. Cost – volume Profit (CVP) relationship
   Break-even analysis; (single and multiple products), Determination of sales volume to attain desired profits, Cash break-even point. Graphic presentation of CVP relationship. Assumptions and limitation of break-even analysis

UNIT - IV

6. Budgeting :
   Definition and objective. Preparation of various types of budgets including cash budget. Fixed and flexible budgets.

UNIT - V

7. Cost Accumulation System
   Job and Process (simple treatment)
8. Variable and absorption costing systems
   Comparison for income determination (simple treatment), Variable costing as a tool of decision-making

BCA306 (B)
Foundation Course

Max marks-50

NOTE :- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Unit-I
Essay type answer in about 200 words. Four essay. Type question to be asked and two to be attempted.
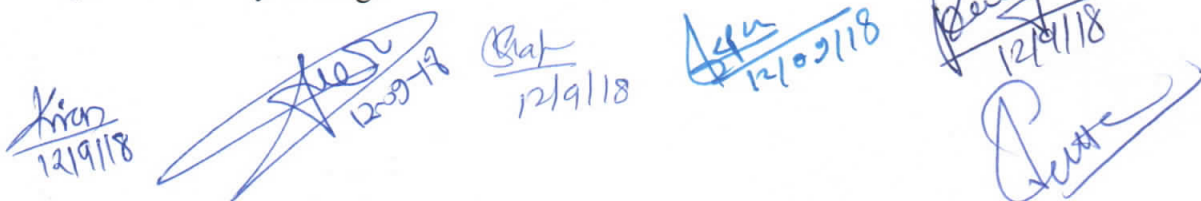### Unit –II
Writing skills for composition- Essay writing.
Unit-III
Precis Writing
Unit-IV

Roading Comprehension of an unseen passage   :10 Marks
Unit –V
Vocabulary based on text   :5 Marks
Grammar- Advanced Exercises.

Note:- Questions on unit I and IV (b) Shall be asked from the prescribed text. Which will comprise popular creative writing and the following items.

Minimum needs- Housing and Transport. Geo -economic profile of women and Empowerment, Management of change . Ouality of life, war and human survival, the question of human social value survival , the question of human Social value, new Economic Philosophy. Recent Liberalisation methods, Demoratic decoralisation(With reference to 73,74 constitutional Amendment)

The text book shall be sponsored by the M.P. Higher Education Department and published the M.P. Hindi Granth Academy.

PRACTICAL WORK
BCA III
BCA-305(B) MULTIMEDIA TOOLS AND APPLICATIONS

1. **Scheme of Examination:-**
    Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Programme 1	-	10
Programme 2	-	10
Viva	-	15
[Practical Copy + Internal Record]	-	15
Total	-	**50**

2. In every program there should be comment for each coded line or block of code
3. Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.
4. All the following programs or a similar type of programs should be prepared

FLASH LIST OF PRACTICALS

Q.1. Draw the following shapes neatly in Flash and convert them in symbols. Also apply different transformations like scale, rotate, skew, skip etc.

|	
1. Fish	2. Palm Tree
3. Swan	4. Teddy Bear
5. Tree	6. Santa Claus
7. House	8. Car
9. Ballon	10. Boat

Q.2. Create a Flash movie to draw the symbol of an animal and apply motion between.

Q.3. Create a Flash movie to create a minimum of five layers (Water, fish, bubbles, plants etc) of an aquarium and apply motion between.

Q.4. Create a Flash movie to create mask.

Q.5. Create a Flash movie to create Fade In/Fade Out in four pictures.

Q.6. Create a Flash movie to create the symbol of a wheel and scale and rotate it.

Q.7. Create a flash movie to create growing circles.

Q.8. Create hand writing in Flash.

Q.9. Create a Flash movie of a moving car with rotating wheels.

Q.10. Transform a circle into a square using shape tween.

Q.11. Create a Flash movie to import text from MS-Word and apply different transformations.

Q.12. Create a Flash movie to demonstrate onion skin markers.

Q.13. Create a Flash movie to create ripple effect.

Q.14. Create a Flash movie to demonstrate motion guide.

Q.15. Create a Flash movie of a sheep climbing a mountain using layers. Tehe scenery should contain mountain, river, trees, clouds, birds, sheep etc.

PHOTOSHOP LIST OF PRACTICALS

Q.1. Import an image in Photoshop and change its background using marquee and lasso tools.

Q.2. Import an image in Photoshop and copy it using heal brush tool.

Q.3. Import an image in Photoshop and desaturate it and recolor it.

Q.4. Use layers and filters to design an image in Photoshop. Use the flatten image as well.

Q.5. Import an image in Photoshop and desaturate it and reveal selective portions.

CORAL DRAW LIST OF PRACTICALS

Q1. Draw the following shapes:
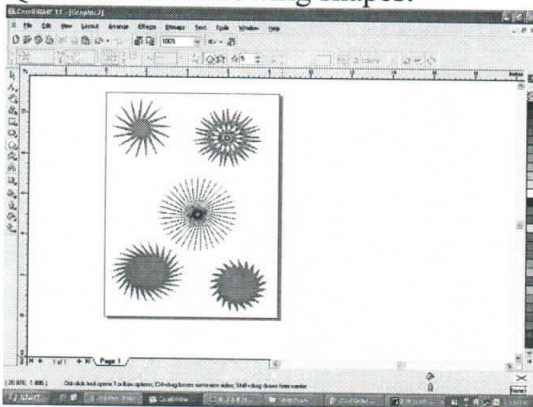
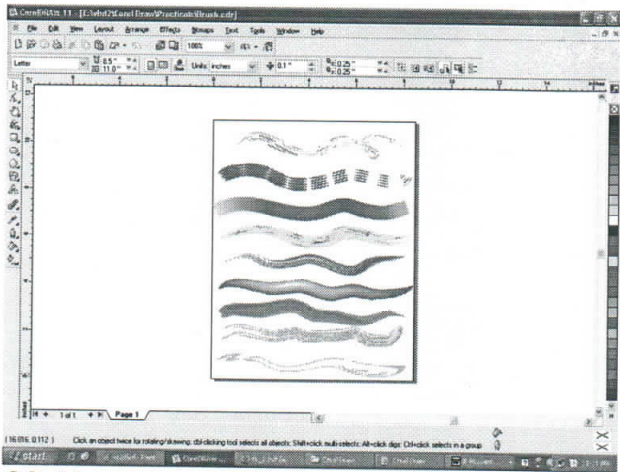Q.2. Use artistic media brush tool to create different backgrounds.
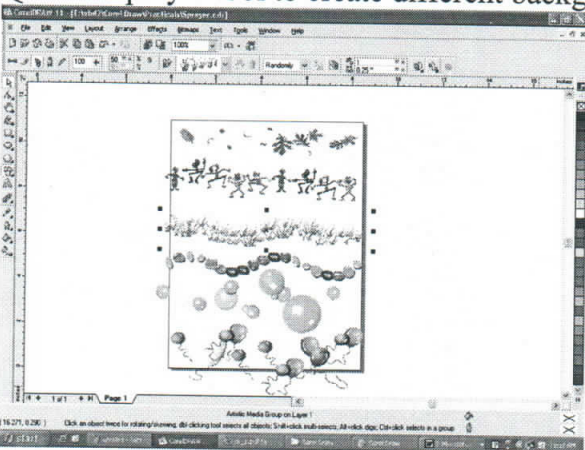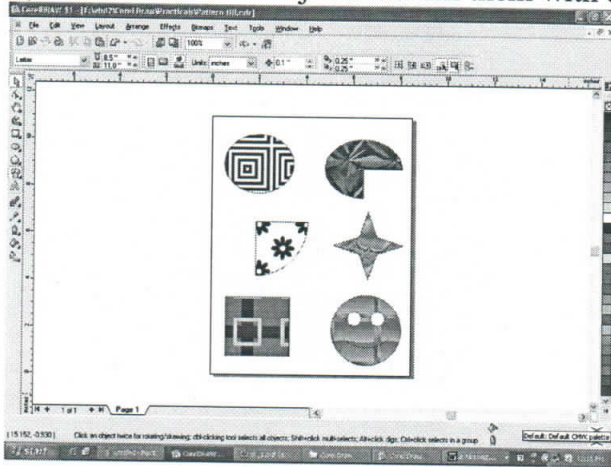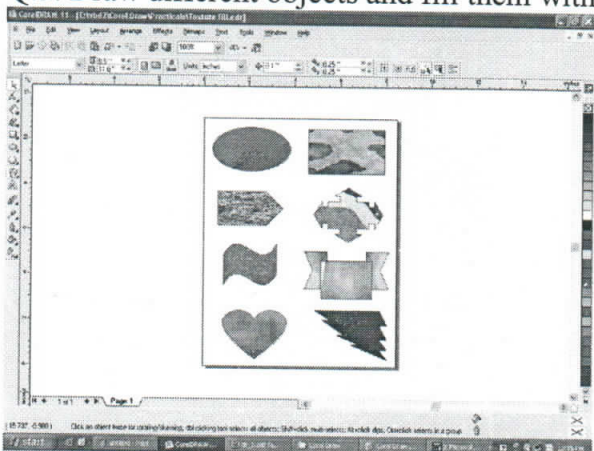
Q3. Use sprayer tool to create different backgrounds.

Q.4. Draw different objects and fill them with different patterns.

Q.5. Draw different objects and fill them with different textures.

1.   Making a simple Video file (not using video file) with suitable sound file using Windows Movie Maker
2.   Edit Video file, like - changing sound and adding starting and ending banner with title using Windows Movie Maker.
3.   Create a .WAV file with the help of Windows sound recorder application.
4.   With the help of Adobe Image Ready create attractive .GIF image.
5.   Create & save MP4 files using appropriate software.
6.   Create & save MP3 files using appropriate software.
7.   Insert sound clips in webpage using Front Page application Software.

PRACTICAL WORK
BCA-307 JAVA

1 Scheme of Examination:-

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Programme 1	-	20
Programme 2	-	20
Programme 3	-	20
Viva	-	25
[Practical Copy + Internal Record]	-	15
Total	-	**100**

2 In every program there should be comment for each coded line or block of code

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared

List of Practical

1. WAP that implements the Concept of Encapsulation.
2. WAP to demonstrate concept of Polymorphism (function Overloading and constructor Overloading).
3. WAP the use boolean data type and print the Prime number Series up to 50.
4. WAP to print first 10 number of the following Series using Do---While Loops 0, 1, 1, 2, 3, 5, 8, 11.................
5. WAP to sort the element of One Dimensional Array in Ascending order.
6. WAP for matrix multiplication using input/output Stream.
7. WAP to add the elements of Vector as arguments of main method (Run time) and rearrange them, and copy it into an Array.
8. WAP to check that the given String is palindrome or not.
9. WAP to arrange the String in alphabetical order.
10. WAP for StringBuffer class which perform the all methods of that class.
11. WAP to calculate Simple Interest using the Wrapper Class.
12. WAP to calculate Area of various geometrical figures using the abstract class.
13. WAP where Single class implements more than one interfaces and with help of interface reference variable user call the methods.
14. WAP that use the multiple catch statements within the try-catch mechanism.
15. WAP where user will create a self-Exception using the "throw" keyword.
16. WAP for multithread using the isAlive(), join() and synchronized() methods of Thread class.
17. WAP to create a package using command and one package will import another package.
18. WAP for AWT to create Menu and Popup Menu for Frame.
19. WAP for Applet that handle the KeyBoard Events.

20. WAP, which support the TCP/IP protocol, where client gives the message and server will receive the message.
21. WAP to illustrate the use of all methods of URL class.
22. WAP for JDBC to insert the values into the existing table by using prepared Statement.
23. WAP for JDBC to display the records from the existing table.
24. WAP to demonstrate the Border Layout using applet.
25. WAP for Applet who generate the MouseMotionListener Event.
26. WAP for display the checkboxes, Labels and TextFields on an AWT.
27. WAP to calculate the Area of various geometrical figures using the abstract class.
28. WAP for creating a file and to store data into that file.(Using the FileWriterIOStream)
29. WAP to read file and display its content using FILEINPUTSTREAM & RANDOMACCESSFILE
30. WAP accepting 2 inputs as a source and target file name and writes the content from the source to target.
31. WAP to display your file in DOS console use the Input/Output Stream.
32. WAP to create an Applet using the HTML file, where Parameter Pass for font Size and Font type and Applet message will change to corresponding parameters.

PRACTICAL WORK
BCA III
BCA-308 Project

1. **Scheme of Examination:- The Project should be done by individual student.**

    Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Software Demonstration	-	40
Project Report (Hard Copy + Soft Copy)	-	20
Project Demonstration/Presentation	-	20
Project Viva	-	20
Total	-	**100**

2. **Format of the student project report on completion of the project**
    *   Cover page as per format
    *   Certificate of Approval
    *   Certificate of project guide/Center Manager
    *   Certificate of the company/Organization
    *   Certificate of Evaluation
    *   Declaration / Self Certificate
    *   Acknowledgement

        In the "Acknowledgement" page, the writer recognizes his /her indebtedness for guidance and assistance of the thesis/report adviser and other members of the faculty. Courtesy demands that he/she also recognize specific contributions by other persons or institutions such as libraries and research foundations. Acknowledgements should be expressed simply, tastefully, and tactfully.

    *   Synopsis of the project
    *   Main Report
        ✓ Objectives & Scope of the project
        ✓ Theoretical Background of Project
        ✓ Definition of problem
        ✓ System Analysis & Design

- ✓ System Planning (PERT Chart)
- ✓ Methodology adopted, system Implementation & Detail of Hardware & Software used
- ✓ System maintenance & Evaluation
- ✓ Cost and benefit Analysis
- ✓ Detailed Life Cycle of the project
    - o ERD,DFD
    - o Input and Output Screen Design
    - o Process involved
    - o Methodology used for testing
    - o Test Report, Printout of the code sheet
- ✓ User/Operational Manual- including security aspects, access rights, back up, Controls etc.
- ✓ Conclusion
- ✓ References
- ✓ Soft copy of the project on CD

Formats of various certificates and formatting styles are as:

1. **Project report Cover Format**:

<div align="center">

A

Project Report

On

Title of the Project Report
(Times New Roman.Italic, Font Size=24)
Submitted in partial fulfillment of the requirements for the award of degree
Bachelor of Computer Application
From
Pt.Ravishankar Shukla University Raipur (C.G.)
(Bookman Old Style, 16 Point, Center)
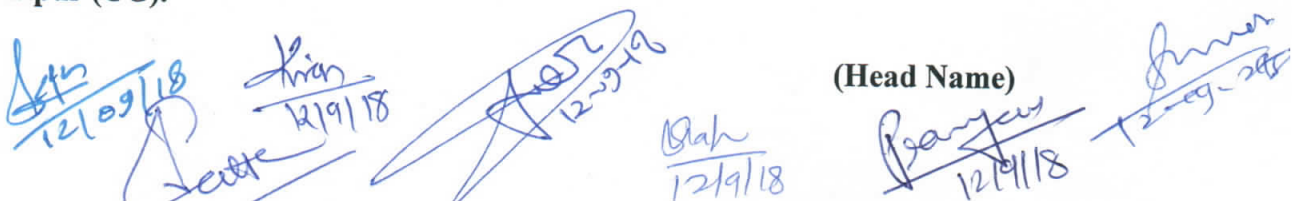Year : xxxx

Logo of college

</div>

Guide
(Guide Name)

Submitted by:
(Student's Name)
Roll No:

<div align="center">

Submitted to
(College Name)
Pt.Ravishankar Shukla University Raipur (C.G.)

</div>

2. Certificate of Approval by Head of the Department in letter head

<div align="center">

CERTIFICATE OF APPROVAL

</div>

This is to certify that the Project work entitled " _____ "
is carried out by Mr/Ms/Mrs _____ , a student of BCA – III year at
(College Name) is hereby approved as a credible work in the discipline of Computer
Science & Information Technology for the award of degree of **Bachelor of Computer
Application** during the year _____ from **Pt. Ravishankar Shukla University,
Raipur (CG).**

(Head Name)

8. **Certificate from the Guide in letter head**

CERTIFICATE

This is to certify that the Project work entitled " _____ "
Submitted to the **(College Name)** by Mr/Ms/Mrs _____ Roll
No_____, in partial fulfillment for the requirements relating to nature and standard
of the award of **Bachelor of Computer Application** degree by , **Pt. Ravishankar
Shukla University, Raipur (CG)** for the academic year 20___ - 20___ .

This project work has been carried out under my guidance.

(Guide Name)

9.   Certificate of the Company or Organisation from where the Project is done
from the Project Manager or Project guide.

10.   Certificate of evaluation in the department letter head

CERTIFICATE OF EVALUATION

This is to certify that the Project work entitled " _____ "
is carried out by Mr/Ms/Mrs _____ , a student of BCA – III year at
(College Name), after proper evaluation and examination, is hereby approved as a
credible work in the discipline of Computer Science & Information Technology and is
done in a satisfactory manner for its acceptance as a requisite for the award of degree of
Bachelor of Computer Application during the year _____ from **Pt. Ravishankar
Shukla University, Raipur (CG).**

Internal Examiner   **External Examiner**

11.   Declaration of Student / Self Certificate

DECLARATION

This to certify that the project report entitled " _____ ",
which is submitted by me in the partial fulfillment for the award of the degree of **Bachelor
of Computer Application, (College Name),** comprises the original work carried out by me.

I further declare that the work reported in this project has not been submitted and will
not be submitted, either in part or in full for the award of any other degree or diploma in this
Institute or any other Institute or University.

Place :

Date :

                                                        (Name)

                                                        (Roll No)