SCHEME OF EXAMINATION 2010-2011
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
BCA	Theoretical foundation of Comp. Sc. Part I Discrete Math	50	20	-	-	2	-	-
	Part II Calculus & Statistical Analysis	50	20	-	-	2	-	-
	Part III Introductory Electronics	50	20	sessional mar		2	-	-
BCA	Fundamentals of IT & O.S.	100	40	(50)	30	4	2	-
BCA	Programming in 'C' Language	100	40	(50)	30	4	2	-
BCA	Introduction to PC Software & Internet Applications	100	40	(50)	30	4	2	-
BCA	A. Programming in Visual Basic	50	20	-	-	2	2	-
	B. Practical based on course 105A	50	20	-	-	-	-	2x2
BCA	A. English Communication skills	50	40	-	-	2	-	-
	B. Foundation Course	50		-	-	2		
BCA	Practical Based on Course-103 (C)	100	50	-	-	-	-	3x2
BCA	Practical Based on Course-104 (P.S)	100	50	-	-	-	-	1x2
	TOTAL	850	360	150	90			
GRAND TOTAL (PAPER+INTERNAL)		(A+C) 1000		(B+D) 450				

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

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THEORETICAL FOUNDATION OF COMPUTER SCIENCE
PAPER-I : DISCRETE MATHEMATICS

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 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.

BOOKS RECOMMENDED:
1. Boolean Algebra and its Application : J.E. Whitesitt
2. Concepts of Modem Mathematics : P.L. Bhatnagar
3. Discrete Mathematics : B.R.Thakur
4. Graph theory and its applications : Narsingh Dev.
5. Discrete Maths : C.L.Liu T M Hill

PAPER-II : CALCULUS AND STATISTICAL METHODS

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 Limits, Continuity and differentiability of function(s) of one variable, First and second kind of discontinuities.

UNIT-II Differentiation of Functions, Differentiation of functions of functions, parametric functions, product of functions, function in Product and quotient form, Logarithmic differentiation, Differentiation of Parametric functions.

UNIT-III Tangent & Normal, Subtangent, Subnormal, Monotonic Increasing and Decreasing function, Simple examples of Maxima and Minima.

Statistical Methods
UNIT-IV Probability – sample space, Types of events (mutually exclusive, equally, likely event, favorable events, dependent and independent events), composition of events, additive and multiplicative law of probability, conditional probability, inverse probability, Bays Theorem.

UNIT-V Frequency distribution and measures of dispersions, Binomial, Poisson and Normal distribution. Curve fitting and Principle of least square, Correlation and Regressions lines.

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BOOKS RECOMMENDED:
1. Differential Calculus : Gorakh Prasad
2. Statistics : Rey & Sharma
3. Statistics : Shukla & Sahay

THEORETICAL FOUNDATION OF COMPUTER SCIENCE
PAPER - III : INTRODUCTORY ELECTRONICS

Max Marks : 50

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

UNIT-I SEMICONDUCTORS & INTEGRATED CIRCUITS- Introduction to semiconductors & its types, Diode, PNP & NPN transistors, CE amplifier & Switching characteristics of Transistors, Logic Families, Scale of Integration, RTL, DTL, TTL, and its characteristics.

UNIT-II INTEGRATED CIRCUIT FABRICATION- Integrated circuits technology. Advantages and limitations of Integrated circuits, Basic monolithic integrated circuit technology.

UNIT-III DATA REPRESENTATION- Data types, number systems, fixed point representation, 1's and 2's complements, Binary fixed point representation, arithmetic operation on binary operation, overflow and underflow, codes, ASCII, EBCDIC codes, Grey codes, Excess-3, BCD codes, Error detection and correcting codes.

UNIT-IV LOGIC GATES AND BOOLEAN ALGEBRA- Logic gates AND, OR, NOT, gates and their truth tables, MOR, NAND and XOR gates, Boolean algebra, basic Boolean Law, demorgan's theorem, Map Simplification, Minimizing technique, K-Map, Sum of product, Product of sum.

UNIT-V COMBINATOINAL & SEQUENTIAL LOGIC CIRCUITS – combinational and sequential circuits, binary adder, substractor, Flip flop – RS, D, JK, and T flip flop, data & shift register, encoder, decoder, comparator, Multiplexer, Demultiplexer, RAM & ROM.

BOOKS RECOMMENDED :
1. Digital Computer Electronics - Albert P. Malvino (TMH Edition)
2. Digital Computer and LogicDesign - M Morris Mano (PHI)
3. Digital Computer Fundamentals - Thomas P. Bartee (Megraw Hill)
4. Handbook of Electronics - GuptaKumar(Pragati Prakashan Meerut)

FUNDAMENTALS of IT & O.S.

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-I Introduction to Computers

Computer System Characteristics and Capabilities : Speed, Accuracy, Reliability, Memory capability, Repeatability, *Computer Hardware and Software:* Block Diagram of a Computer, Different Types of Softwares. *Data Processing:* Data, Data Processing System, Storing Data, Processing Data. *Types of Computers:* Analog, Digital, Hybrid General and Special Purpose Computers. *Computer Generations:* Characteristics of Computer Generations Computer Systems – Micros, Minis & Main-frames *Introduction to a PC :* The IBM Personal Computer Types of PC systems PC, XT & AT Pentium PC's Limitations of Micro Computer.

UNIT-II **Computer Organization :**

Introduction to Input Devices : Categorizing Input Hardware, Keyboard, Direct Entry-Card Readers, Scanning Devices – O.M.R., Character Readers, MICR, Smart Cards, Voice Input Devices, Pointing Devices – Mouse, Light Pen. *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. *Central Processing Unit :* The Microprocessor, control unit, A.L.U., Registers, Buses, Main Memory, Main Memory (RAM) for microcomputers, Read Only Memory(ROM). *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.

UNIT-III **Computer Software:**

System Software: System software Vs. Application Software, Types of System Software, Introduction and Types of Operating Systems programs, Booting Loader, Diagnostic Tests, Operating Systems Executive, BIOS, Utility Programs, File Maintenance, Language Processors, Assembler, Compiler & Interpreter. *Application Software:* Microcomputer Software, Interacting with the System, Trends in PC software, Types of Application Software, Difference between Program and Packages.

UNIT-IV **Microsoft Disk Operating System :**

Introduction, 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 Commands - DIR, MD, CD, COPY, DEL, REN, VOL, DATE, TIME, CLS, PATH, TYPE. Files & Directories, Elementary External DOS Commands - CHKDSK, MEM, XCOPY, PRINT, DISKCOPY, DISKCOMP, DOSKEY, HELP, TREE, SYS, LABEL, ATTRIB, Creating a Batch Files, Additional Commands - ECHO, PROMPT, EDIT, FORMAT, FDISK, BACKUP, RESTORE, MORE, SORT, APPEND. Introduction to Unix OS, Basic commands eg pwd, is, cat, pg, who, ps, mail, cal, File commands- ls, cat, tail, cp, mv, rm, file,type, chmod. Directory Commands- cd, mkdir, rmdir.

UNIT-V **Overview of GUI & Windows OS:**

Introduction to GUI and various versions of MS Windows 98, Windows XP, Windows 2000, Windows Vista, Workgroups and domains, Quick launch toolbar, Windows Flip, 3D navigation, Desktop, Internet explorer 7.0, networking features (Sharing files), managing programs and multimedia, control panel, Speech recognition and Dictation, Handling user accounts, Security and protection features, management tools (updating, diagnosing, configurations, backup and recovery, upgrading windows vista) OLE Concept, Comparative study of Linux, DOS and Windows, features of Windows Vista, reliability, migrating the data.

Books

1. Using IT : Williams T M Hill
2. IT : Curtin T M Hill
3. Fundamental of Information Technology : Chetan Shrivastava_Kalyani Publishers
4 Computer Fundamentals : P.K Sinha BPB Pubications

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PROGRAMMING IN 'C' LANGUAGE

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-I **Fundamentals of C Programming -** 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().

Control Constructs : If-else, conditional operators, switch and break, nested conditional branching statements, loops: For, do.. while, while, Nested loops, break and continue, goto and label, exit function.

UNIT-II **Arrays, Strings and Functions :** Array:-Array declaration, One and Two dimensional numeric and character arrays. Multidimensional arrays.

String:- String declaration, initialization, string manipulation with/without using library function.

Functions:-definition, function components: Function arguments, return value, function call statement, function prototype. Type of function arrangement: return and argument, no return and no argument, return and no argument, no return and argument. Scope and lifetime of variable. 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 **Structure, Union & 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 **Dynamic Data Structures in 'C' - Pointers:** definition of pointers, 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, pointers vs. Arrays, Arrays of pointer, pointer to array, pointers to functions, 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 Miscellaneous Features -** 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 C preprocessor #include, #define, conditional compilation directives: #if, #else, #elif, #endif, #ifndef etc.

BOOKS RECOMMENDED : -

Main Reading:

1. Programming in C	-	Yashwant Kanetkar
2. Programming in C	-	Venugopal
3. The C Programming Language	-	Kemigham and Ritche [Prentice Hall].
4. Application Programming in C	-	R. Johnson-baugh & Martin Kalin Macmillan International Editions.
5. The Spirit of C	-	Mullish Cooper, Jaico publishing House
6. How to solve it by Computers	-	R.G.Dromey, Prentice Hall of India.
7. Mastering in CPP-		Venugopal

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Supplementary Readings:
1. The art of C Programming - Jones, Robin & Stewart, Narosa Publishing House.
2. C Problem solving and Programming - A. Kenneth, Prentice Hall International.
3. C made easy - H. Schildt, McGraw Hill Book Company

Introduction to PC Software & Internet Applications

Max Marks : 100   Min. Marks : 4[

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

UNIT-I   Using Office 2007 MS-Word- **Creating and editing word documents, formatting documents –aligning documents, indenting paragraphs, changing margin documents, formatting pages, formatting paragraph, printing labels, working with tables formatting text in tables, inserting and deleting cells, rows and columns, us bulleted and numbering, checking spelling and grammar, finding synonyms working with long documents, working with header and footer, adding page number and foot note, working with graphics, inserting clip art, working with pictures, Word art, creating flow chart, creating word templates, creating templates, working with mail merge, writing the form letter, merging form documents, selecting merge records, creating macros, running macro.**

UNIT-II   Working with MS-Excel – Introducing Excel, use of excel sheet, saving, opening, and printing workbook ,Apply formats in cell & text, Divide worksheet into pages , setting page layout, adding Header & Footer. Using multiple documents, arranging windows i.e. (Cascade, Tiled ,Split), protecting your work, password protection Working with Functions & Formulas, using absolute reference, referencing cell b name , using cell label , giving name to cell and ranges , working with formula (mathematical & trigonometric , statistical, date time , most recently used) Working with Excel graphics, creating chart & graphs. filtering a database ,using auto filte ,criteria range, calculating total and subtotal, creating pivot table, goal seek, recording & playing macros, deleting and selecting macro location.

UNIT-III   Working with MS-PowerPoint & MS-Access - Presenting with PowerPoint – Creating presentation, working with slides, different types of slides, setting pag layout, selecting background and applying design, adding graphics to slide, adding sound and movie, working with table, creating chart and ginih, playing a slide show slide transition, advancing slides, setting time, rehearsing timing, animating slide animating objects, running the show from windows. **MS-Access** – Creating table in Access, defining datatypes, creating relationships, manipulating records.

UNIT-IV   Introduction to HTML and Designing Web Page using MS-FrontPage – Concep of website, web standards, what is HTML, HTML documents/files. HTML Edito explanation of the structure of home page, elements in HTML document, HTML elements, HTML tags and basic HTML tags, viewing the source of webpage. An downloading the WebPages source **Image, internal and external linking betwee web pages** – IMG elements. **Features of Front page 2000.** Designing web page working with views, Hyperlinks, setting Hyperlink, using List, themes, tables, Frames style sheet, working with forms, page Templates, frame templates, anchor, workin with banners, Dynamic effect, How to publishing webpages in local area network

UNIT-V   Animations and Graphics: **Basic Concept of 2D/3D Animation, Principle an**

application in Multimedia, Hardware & software resources requirement for animation, steps for creating generic animation. Learn the basic of Flash Animation;

Creating a new movie : 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.

Interface of Photoshop : The Photoshop workspace use of menus palettes and toolbox, creating new images, using selecting tools, lasso tool, Direct select Lasso, convert point tool, image adjustment through Photoshop.

Book:
1. Office 2000 made easy   -   Alan Neibauer, Tata McGraw Hill.
2. An Introduction to HTML   -   Dr.K.N. Agarwala, Dr.O.P.Vyas, P.A.Agarwala
3. FLASHMX Bible   -   Robert Reinhart
4. Sams Teach Yourself Macromedia Flash 8 in 24 Hours - Phillip Kerman
5. Photoshop Bible   -   Willey Publication
6. Ms front page 2000 complete concept and Technical   Gary, B.shelly.
8. Complete Reference HTML
9. How to do everything with Macromedia -   Bonnie Blake,Doug Sahlin
10. Multimedia Making it works   -   Tay Vaughan Tata Mcgraw Hills

PROGRAMMING IN VISUAL BASIC

Max Marks : 50   **Min. Marks : 20**

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

UNIT-I   **Introduction to visual Basic:** Hardware requirements, features of VB, Editions of Visual Basic, and Event Driven Programming vs procedure oriented programming. Introduction to Integrated Development Enviroment. Basic concepts of Visual Basic programming: Controls, properties, methods, events, forms, projects. Creating Executable files.
Variables, constants, data types, data conversion function., scope of variables Operators **Control Structure :** Conditional / branching statements : If...else..endif, Select case Looping statements: do.. while, for.. next, for each, exiting a loop, goto statement, msgbox and input box functions.

UNIT-II   **Arrays:** types of arrays, array manipulation, Working with standard controls. Working with control array, various key and mouse events, using drag and drop concepts.
Procedure and Functions: types of function, library function, date and time function, format function, and string related function, validation function. Creating user defined function & procedure, call by value and call by reference, concept of recursion, working with basic module, class module and form module.

UNIT-III   **Working with Advanced Controls:** toolbar, status bar, tabbed dialog controls, progress bar, animation controls, dtpicker, calendar, common dialog control.
SDI & MDI Application: creating MDI application, menu editor: defining menu & popup menu, sub main, startup objects. Working with graphics control and using grphic methods.

UNIT-IV   **Error Handling:** Types of errors, error trapping tools: watch window, local window,

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immediate window, debug menu, tracing program flow with call stack, the err object, error function, error handling routines : on error goto statements.

File Handling: type of file handling, Sequential file handling: reading, writing and appending in file, understanding user defined data type, Random access file: reading, writing and appending in file.

UNIT-V   **Data Access Using the ADO Data Control:** Basic concepts of relational database, visual data manager, introduction to SQL, concept of ODBC, Overview of DAO and RDO, Using DAO and RDO to access data. ADO features, difference among ADO, DAO and RDO, accessing and manipulating database using ADO, ADO object hierarchy, concept of recordset and its type, connection object, command object.

Data Environment: accessing data using data environment, using Datagrid, Data combo, data list, MSHFlexgrid.

Report Generation: Overview of Data Report, creating Data report, adding groups using data report functions. Introduction to Crystal Report Writer.

BOOK RECOMMENDED:
Mastering Visual Basic 6 Fundamentals - By Microsoft
Mastering in Visual Basic - By BPB Publications.
Introduction to VB Programming – By V. K Jain
Visual Basic 6 Programming Black Book By Holzner Dreamtech
Peter Norton's guide to Visual Basic 6 Techmedia

COMMUNICATION SKILLS

Max Marks : 50

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 related to spellings, meanings of words and the correct use of words relating to the field of computers and other areas of knowledge.

UNIT-I   Vocabulary, knowledge of at least one thousand words - their spelling, meanings and usage. Phrases.

UNIT-II   Structure of sentences - Simple, Complex and compound. Clauses and Subordinate clauses

UNIT-III   The tenses and aspects. The modal, the gerund, the participle, the infinitive.

UNIT-IV   **Transformation of sentences :-**
1. Interchange of Active and Passive Voice.
2. Interchange of Affirmative and Negative Sentences.
3. Interchange of Explanative and Assertive Sentences.
4. Interchange of interrogative and Assertive Sentences.
5. Direct and Indirect Speech.

UNIT-V   Practical Application of grammar. Practice in talks, conversation and writing. Report writing. Writing of applications. Letter writings, Description of events.

Books:
1. Living English Structure   .   by W.S. Allen.
2. A Practical English Grammar   .   by Thomson and Martinet.

Testing Pattern : The question paper will clearly specify units and will have questions from unit I to IV. Unit V will include practicals.

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Unit I   -   10 marks
Unit II   -   10 marks
Unit III   -   10 marks
Unit IV   -   10 marks
Unit V   -   Practicals - 10 marks

FOUNDATION COURSE : GENERAL AWARENESS

Max Marks : 50

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

1.   Indian Art, meaning of art, features of indian art, elementary knowledge of paintings, music, dancing, sculpture archeology, iconography & other social arts.

2.   Indian Literature, Ancient Indian Literature, Elementary knowledge of Vedic Literature, Mahabharta, Ramayan and other main granthas.

3.   Indian Freedom Struggle : Freedom Struggle of 1857, National Consciousness, non-cooperation movements. Civil disobedient movement quit India movement, contribution of revolutionaries in freedom struggle.

4.   Indian Constitution : Introduction, main features of constitution fundamental rights, Fundamental duties.

Text Book :

Indian Culture the book sponsored by M.P. Hindi granth Academy is the prescribed textbook for the syllabus..

Bridge course for BCA (Only For Non mathematics Students)

Max Marks : 50   Min. Marks : 20

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.

BOOKS RECOMMENDED
Mathematic (class XI and XII)   -   R.D.SHARMA
YOUGBODH Mathematics   -   (class XI and XII)

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PRACTICAL WORK
BCA I
PROGRAMMING IN VISUAL BASIC

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

List of Practical

1. WAP to perform arithmetic operation **using command buttons**. (Declare variable globally).

2. WAP to take input of principal, rate & time and calculate simple interest & compound interest.

3. Write a program to take input of x and print table of x in the following format.
   X * 1 = X
   X * 2 = 2X

   X * 10 = 10*X

4. Design an interface, which will appear like marksheet. It will take input of marks in five subjects and calculate total marks and percentage then provide grade according to following criteria. (**Using nested if**) (Use tab index property to move focus).

If %	Then Grade
> = 90	A+
> = 75 & < 90	A
> = 60 & < 75	B
> = 45 & < 60	C
Otherwise	F

5. WAP to create a simple calculator (**Using control array**)

6. Write a program to check whether an centered no. is prime or not. (**Using for loop & Exit for**)

7. Write a program which will count all vowels, consonants, digits, special characters and blank spaces in a sentences (Using **select case**)

8. WAP to illustrate all functionalities of listbox and combobox.

9. WAP using **check boxes** for following font effects.
   Bold
   Italic
   Underline
   Increase font size
   Decrease font size
   Font color

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10. WAP for temperature conversion using **option button**.
11. WAP to launch a rocket using **pictures box** and **timer control**.
12. WAP to change back color of any control (label, textbox) using **scroll box**.
13. WAP to search an element for a **one dimension static array**.
14. WAP to sort a dynamic array of
    (a) n numbers
    (b) n strings (Input array size at run time)
15. WAP to take input of two matrices and perform their addition, subtraction and multiplication using **menu editor**.
17. WAP to illustrate **call by value and call by reference** (to swap to values)
18. Write a program to calculate factorial of a number using **user defined function.**
19. Take input of a word and WAP to check whether it is a palindrome or not. **(Without using structure fun)**
20. WAP to find smallest among given three numbers using **user defined procedures.**
21. WAP to generate, print and find sum of first n elements of fibonacci series using **recursion.**
22. WAP to perform read write operations in a **sequential file.**
23. Create a **user defined data type** having fields name (as string of length 20 bytes), Rollno (as integer), class (as string of 10 bytes). WAP to create a **random access file** to store above data and perform following operations in this file.
    (a) Write new record   (b) Read / display existing record   (c) Delete any record
    (d) Search any record   (f) List selected records   (e) close the file
24. WAP to display records of a table using **DAO & bound control** code for buttons to move at first record, next record, previous record, last record in the table.
25. Create a table using **visual data manager** and write a program using **RDO & advanced bound control** to add, delete, edit & navigate records.
26. WAP to access a database using **ADO** & display a key column in the combo box or list box when an item is selected in it, its corresponding records is shown in **MSH flex grid.**
27. Using **Data Environment** create a program to display records of any table.
28. WAP to generate marksheet of students in a class through **data report.**
29. WAP to illustrate various **key board and mouse events.**
30. Using **drive, directory and file list box** (it will show only .bmp files). Let the user select the bmb files, which will appear in picture box as user click on any item in list box.
31. Using **toolbar** design an interface for string manipulation. Toolbar should have tabs to
    (a) Find length of string
    (b) No of blank spaces in sting
    (c) Reverse the string
    Also show current date & time in **status bar.**

BCA I
PROGRAMMING IN 'C'

1 **Scheme of Examination:-**
Practical examination will be two programs and a project demonstration. It will be of 3 hours duration. All programme with flowchart & algorithms. The distribution of practical marks will be as follows and

Programme 1	20
Programme 2	20

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

2   Demonstration of installation of C Programming Language.

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

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

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

6   The mini-project could be on Sale or Purchases or Working of a part of a whole system such as Regulation of interview using queue, Sale of handicrafts with bargain, Sale of story books, Expenses in household purchases, Purchase of stationery in office, Phone/ Train/ Book Catalogue using binary tree, Sale of ice-cream/ snacks/ fast-food/ sweets, etc.

7   The format of project report will be as given later.

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 print all combination of 1 2 3.

3.   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

```
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 4 6 4 1
```

4.   Write main function using switch...case, if..else and loops which when called asks pattern type; if user enters 11 then first pattern is generated using for loop. If user enters 12 then first pattern is generated using while loop. If user enters 13 then first pattern is generated using do-while loop. If user enters 21 then a second pattern is generated using for loop and so on.

5.   Write program to display number 1 to 10 in octal, decimal and hexadecimal system.

6.   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.

7.   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 sin series up to n terms and its sum.

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(18)

d) Print exponential series up to n terms and its sum.
e) Print prime numbers up n terms.
f) Print whether a given year is leap or not.
8. Write program no. 6 but use library function to perform above tasks.

ARRAY

9. 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.
f) To arrange the alphabets of a string in ascending order.

10. Create a single program to perform following tasks using switch, if..else, loop and single dimension integer array:
a) Sort the elements.
c) Search for presence of particular value in array element using linear search.
d) Search for presence of particular value in array element using binary search.

11. 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.

12. 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) Subtraction of two matrix.
c) Multiplication of two matrix.
d) Inverse of matrix.
e) Transpose of matrix.
f) Sum of diagonal elements

13. 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 largest string.
c) Finding the smallest string.
d) Searching for presence of a string in array.

Functions

14. Write program using the function power (a, b) to calculate the value of a raised to b.
15. Write program to demonstrate difference between static and auto variable.
16. Write program to demonstrate difference between local and global variable.
17. 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.
c) Print Sin series up to n terms and its sum.
d) Print exponential series up to n terms and its sum.
18. Write a program to perform following tasks using switch...case, loops and recursive function.
a) Find factorial of a number

(19)

b) Print Fibonacci series up to n terms and its sum.
c) Print Sin series up to n terms and its sum.
d) Print exponential series up to n terms and its sum.
e) Print natural series up to n terms and its sum

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

ARRAY & FUNCTION

20. Create a single program to perform following tasks using switch, if..else, loop, functio and double dimension integer array of size 3x3:
   a) Addition of two matrix.
   b) Subtraction of two matrix.
   c) Multiplication of two matrix.
   d) Inverse of matrix.
   e) Transpose of matrix.

21. Create a single program to perform following tasks using switch, if..else, loop, user define function and single dimension character array:
   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, consonant in each word of a sentence and no, of punctuation in sentence.

22. Create a single program to perform following tasks using switch, if..else, loop, functio and single dimension integer array:
   a) Sort the elements.
   b) Find largest element and smallest element.
   c) Search for presence of particular value in array element using linear search.
   d) Search for presence of particular value in array element using binary search.

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

STRUCTURE & UNION

24. 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.

25. 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.

26. 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.

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27. Write program to create structure complex having data members to store real and imaginary part. Provide following facilities:
   a) Add two complex nos. using structure variables.
   b) Subtract two complex nos. using structure variables.
   c) Multiply two complex nos. using structure variables.
   d) Divide two complex nos. structure variables.
   Use structure as argument to function and function returning structure.

POINTER

28. Define union Emp having data members:-one integer, one float and one single dimension character array. Declare a union variable in main and test the union variable.
29. Define an enum Days_of_Week members of which will be days of week. Declare an enum variable in main and test it.
30. Write a program of swapping two numbers and demonstrates call by value and call by reference.
31. Write program to sort strings using pointer exchange.
32. Write a program in c using pointer and function to receive a string and a character as argument and return the no. of occurrences of this character in the string.
33. 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.
34. Write program to find biggest number among three numbers using pointer and function.
35. 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.
36. Write program to Create a structure Employee having data members to store name of employee, employee id, salary. Use Pointer to structure to simulate dynamic array of structure store data of n employees and print the stored data of n employees using pointer to structure.
37. Write a program to sort a single dimension array of integers of n elements simulated by pointer to integer. Use function for sorting the dynamic array.
38. Write a program to sum elements of a double dimension array of integers of m rows and n columns simulated by pointer to pointer to integer. Use function for sum the elements of the dynamic array.
39. Write program to demonstrate difference between character array and pointer to character.
40. Write program to demonstrate difference between constant pointer and pointer to constant.
41. Write program to demonstrate pointer arithmetic.
42. write program to demonstrate function-returning pointer.
43. Write program using self-referential pointer to structure to create and print the linked list, data structure.

FILE STREAMS

44. 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.
45. Write program to create a file 'data' containing a series of integers and count all even numbers present in the file 'data'.
46. Write a program to count no. of tabs, new lines, character and space of a file.
47. Write a program to read item number, rate and quantity from an inventory file and print the followings:
   1. Items having quantity > 5.
   2. Total cost of inventory.

INTRODUCTION TO PC SOFTWARE & INTERNET APPLICATION

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

Programme 1 (Word)	-	13
Programme 2.(Powerpoint)	-	13
Programme 1 (Excel)	-	13
Programme 2 (HTML/ Internet Tools)	-	16
Viva	-	25
[Practical Copy + Internal Record]	-	20
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

MS- WORD

File New, Open, Save, Cut, Copy, Paste, Drag Drop, Bullets and Numbering, Undo, Redo
Find, Replace, Paragraph Formatting, Character Formatting and Page Formatting.

1. 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 limitations of typewriter but also offers various useful features that canno
    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 specia
    typewriters. Magnetic Tape Selectric typewriters (MIST) were launched by IBN
    (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 Word1.doc
    (iii) Move the second paragraph to the end of the document. Using darg & drop.
    (iv)   Move the second paragraph in the end of the document using cut, paste operations
    (v)   Undo the above actions.
    (vi)   Now use Redo actions
    (vii) Go to the End of the document (in one step)
    (viii) Go to the Beginning of document (in one step)
    (ix)   Insert page break before the third paragraph.
    (x)   Search the word "computer: in your document with options Match case, find whole
           words only.
    (xi)   Replace the word "typewriters" with "word processor"

                                                                                    (22)

(xii) Undo the above action

(xiii) Remove All page breaks from your document

(xiv) Change the magnification of your document to different percentages using zoom features.

(xv) Format the above written paragraphs and give the options as follows:

    (1) Alignment justified

    (2) Indentation: left 0.2 right:0.2

    (3) Spacing: before 6 pt. after:6 pt.

    (4) Special: first line by :0.4"

    (5) 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: 1indentation: 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, under line and small caps using find and replace with formatting options.

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

File New, Open, Save, Find, Replace, Paragraph Formatting, Character Formatting and Page Formatting.

2. Type the text as show below and perform the tasks as directed:

Computers

COMPUTER is an electronic device that processes data and gives meaningful information.

Computers are being used in almost all the fields today

EXPERT SYSTEMS

HUMAN THINKING AND ARTIFICAL INTELLIGENCE

Can computer think?

AI at work Today: Natural Language programs and Expert Systems.

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 'computerisations'. 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) Centre 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.

(23)

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(viii) Change page setup according to the following specifications
Top margin: 1.5", bottom margin: 1.5"
Gutter: 1", left margin: 1.5"
Right margin: 1"
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, odd & even pages.
(xi) Save and close the document.

Character Formatting, Paragraph Formatting.

3. Type and format the text as shown below it any spelling or grammar mistake correct it using spelling and grammar facility.

DELHI

New Delhi, the capital and the third largest city of India is a fusion of the ancient the modern. The remains of the *Muslim* dynasties with its architectural delights, the majestic ambience of the bygone era.
On the other side *New Delhi*, The imperial city built by *British*, reflects the fast present .The most fascinating of all is the character of *Delhi* which varies from the century mausoleum of the Lodi kings to ultra modern glass skyscrapers

Character Formatting

4. Type text and Format the text as shown below : $C_2H_5OH + PCI = C_2H_5CI + POCl$

$4H_3PO_3 = 3H_3PO_4 + PH3$

$PCl_3 + Cl_2 = PCl_5$
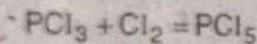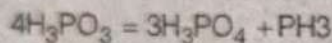
Bullets and Numbering

5. Write text and format as shown below
1. Own house
   - 2400 square feet living area
   - Separate bungalow.
   - Car shed available
2. Car
   - Maruti Omni Van
   - Registration number TN 728195
   - 1994 model

Table

6. Create the following table.
Admission 2005-06

Course	OC	BC	MBC	SC/ST	Total
Computer Science	9	18	5	5	37
Commerce	14	25	6	5	50
Grand Total					87

Table

7. Create Table as shown

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

Mail Merge, Mailing Labels

8. Write a letter to send invitation to your friend inviting on your birthday.
9. Create labels for your friends' address.

Formatting and Frames

10. Prepare a letter as shown below.

To,

The Principal,
ABC College, ABC Nagar,
Raipur (C.G.)

Sub:- Leave.

Respected Sir,

This is to bring to your kind notice, that due to reasons mentioned below, I am unable to attend the college / I could not attend the college.

_____

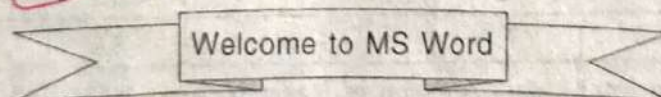As such, I request you to kindly grant me leave for _____.

Thanking you.   Your Faithfully

Raipur;   Signature ------------------------------------
Dated :   Name --
                                                    Designation -------------------------------

Shapes

11. Create Following Figures.

Welcome to MS Word

Insert Picture and Caption

12. Type the text as shown below and insert picture any picture you have and place caption. As already mentioned, a word processor is a package that processes textual matter and creates organized and flawless documents.

Figure 1

In addition to it a word processor not only remote all the limitations of typewriter but

also offers various useful features that cannot be even dreamt of with typewriter.

13. Create Columnar Text as shown below

New Delhi, the capital and the third largest city of India is a fusion of the ancient a the modern.

he remains of the *Muslim* dynasties with its architectural delights, give the maje ambience of the bygone era. On the other side *New Delhi*, The imperial city built by Brit reflects the fast paced present .

The most fascinating of all is the character of *Delhi*, which varies from the 13th cent mausoleum of the Lodi kings to ultra modern glass skyscrapers

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	3 - Jul -08
Pay Rate	95

Worker's Gross Name Wages	Hired On	days Worked

Kushagra	3-Mar-07
Pradeep	4-Mar-07
Puneet	5-Mar-07
Rajeev	6-Mar-07

(I)   Calculate days work 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 (1997)	Bonus (Rs.)	Total Salary (1998)	% (Increase
Shirome	5000	10	450		1200		
Somya	9000	15	800		200		
Tanya	7000	12	900		1800		

(I)   Calculate the total salary as sum of Basic salary, HRA ,DA, for each employe for 1997

(II)   Calculate total salary for year 1998 as sum of salary of 1997 and bonus

(III) Calculate % increase in salary from 1997 to 1998

3. Create a worksheet as follows .

Pace computer (ATC CEDT) Govt. Of India

Payroll for employee (Permanent)

empcode	name	doj	salary	bonus	net salary
E001	Meenu	3-Mar-95	5000		
E002	Manoj	4-Mar-06	4000		
E003	Preeti	3-Mar-95	4800		
E004	Sumita	6-Mar-07	7500		

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(26)

(I)   allow bonus 8000 to employee having service >2 year other vise allow bonus 3000
(II)   find net salary as sum of bonus and salary

4.   create the worksheet as follows

Roll No	Name	English	Maths	Total	Average	Division
101	Kushagra	95	99			
102	Ajay	92	95			
103	Vijay	70	69			
			Class Average			

(I)   find Total of two subject for each student
(II)   find average of two subject for each student
(III)   find class 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 student 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 underline

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

6.   create bar chart with given data

	2001	2002	2003
Tea	19	23	25
Coffee	22	24	22
Sugar	45	40	45

(II)   Provide heading production detail
(III)   Provide z axis title; lacks metric tone
(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
(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 you are required to import the data. How you ?
11. CCreate a able using 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
Interest 300

MS-POWER POINT

1. Write an animated Presentation about any three courses available in a collage O
2. Write an animated Presentation about communication of a bad news