

PT. RAVISHANKAR SHUKLA UNIVERSITY, RAIPUR (C.G.)

POST GRADUATE DIPLOMA IN COMPUTER APPLICATION
[DURATION – ONE YEAR – FULL TIME]

The duration of the course shall be one year consisting of two semesters. There shall be three theories and two practical courses in the each semester.

FIRST SEMESTER

- PGDCA-101 : Fundamentals of Computers.
- PGDCA-102 : Office Automation and Tally.
- PGDCA-103 : Programming in C
- PGDCA-104 : Practical based on PGDCA-102.
- PGDCA-105 : Practical based on PGDCA-103.

Second Semester

- PGDCA-106 : Programming in VB .Net
- PGDCA-107 : Database Management Systems.
- PGDCA-108 : Internet and Web Technology.
- PGDCA-109 : Practical based on PGDCA106
- PGDCA-110 : Practical based on PGDCA107 and PGDCA-108

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FIRST SEMESTER

PGDCA-101

FUNDAMENTALS OF COMPUTERS

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. Generation of Computers.

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 & 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 & 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.

UNIT - V: Operating System and Linux

Introduction, Uses of OS, Functions of OS, Booting process, Types of Reboot, Booting from different OS, Types of OS, DOS, Windows, Linux Open source Software concept and evolution of Linux; Features of Multi-User Operating System; Structure of Linux OS; Security Features of Linux, File System, Directory Structure and related commands. Linux Editors & editor commands, Linux commands cd, md, rm, mv, cp, ls, cat, find, grep.

Books Recommended:

1. Computer Fundamentals, P. K. Sinha, BPB Publications, Sixth Edition.
2. Introduction to Information Technology, V. Rajaraman, PHI, Second Edition.
3. Operating System Concepts, Silberchartz, Galvin and Gagne, Wiley India Edition
4. Unix Concepts and Applications, Sumitabha Das, McGarw hill

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FIRST SEMESTER

PGDCA-102

OFFICE AUTOMATION AND TALLY

UNIT - I Using Office with MS-Word

Introduction to word processing software and its 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 envelopes 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 Working with 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 Working with MS-PowerPoint

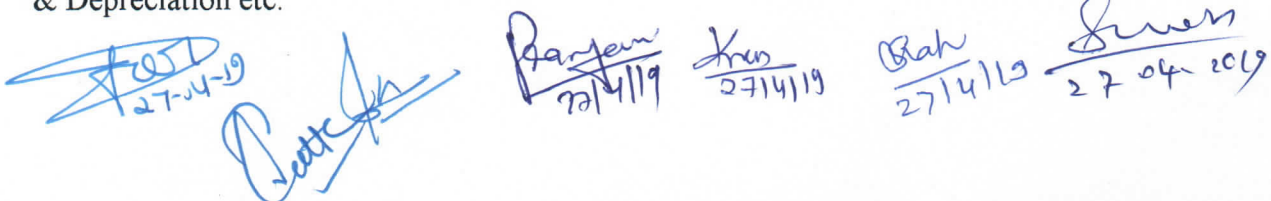
Introducing power point, Use of power point presentation, Creating new slides saving, Opening and printing. **Home Tab:** New slide, Layout, Reset, Delete, Setting text direction, Align text, Convert to smart art, Drawing options. **Insert Tab:** Table, picture, clipart, photo album, smart art, shapes 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 Working with 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, Data type and formatting options.

UNIT – V Tally

Setting up Ledger & Groups. Study of recording of transactions in the 'Voucher'. (According to Golden rules). Study of 'Final A/C preparation & displaying in different mode/format'. Study of alteration & Deletion of ledger/Groups. Study of cash & fund flow, day book, sales register, purchase register, bills receivable/Payable etc. Study of data security & backing up data. Outline of entry for Income Tax, ED, VAT, ST/CST, PF, Gratuity, Bonus, Loans & Depreciation etc.


The bottom of the page contains several handwritten signatures and dates in blue ink. From left to right, there is a signature with the date '27-04-19', a signature with the date '27/4/19', a signature with the date '27/4/19', a signature with the date '27/4/19', and a signature with the date '27 04 2019'.

FIRST SEMESTER

PGDCA-103

PROGRAMMING IN C

UNIT – I: Introduction:

Introduction Character set, Identifiers and Keywords, Variables, Displaying variables, Reading Variables, Character and Character String, Qualifiers, Type define Statements, Value initialized variables, Constants, Constant Qualifier, Operators and Expressions, Operator Precedence and Associativity, Basic input output: Single Character I/O, General Outputs, Types of Characters in format string, Scanf with specifiers, Searchset Arrangements and Suppression Character, Format Specifiers for scanf.

UNIT – II: Control Structures & Functions:

Control Structure: if-statement, if-else statement, multiple decisions, nested if statements, switch statement, for-loop, while-loop, do-while loop, break statement, continue statement, goto statement.

Functions: The main function, functions accepting more than one parameter, User defined and library functions, Concept associatively with functions, function parameter, Return value, recursion comparisons of Iteration and recursion variable length argument list.

UNIT – III: Arrays & Pointes:

Scope and Extent, Arrays, Strings, Multidimensional Arrays, Strings, Array of Strings, Function in String, Pointers: Definition and use of pointer, address operator, pointer variable, referencing pointer, void pointers, pointer arithmetic, pointer to pointer, pointer and arrays, passing arrays to functions, pointer and functions, accessing array inside functions, pointers and two dimensional arrays, array of pointers, pointers constants, pointer and strings.

UNIT – IV: Structure and Union:

Declaring and using Structure, Structure initialization, Structure within Structure, Operations on Structures, Array of Structure, Array within Structure, Creating user defined data type, pointer to Structure and function. Union, difference between Union and Structure, Operations on Union, Scope of Union.

UNIT – V: Dynamic Memory Allocation and File Handling:

Dynamic Memory Allocation: Library functions for Dynamic memory allocation, Dynamic Multi-Dimensional arrays.

File Handling: - Introduction, Structure, File handling, Functions file types, Un-buffered and buffered file, Error handling.

Recommended Books:

1. Let Us C - Yashwant Kanetkar.
2. Programming in C - E. Balagurusamy

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FIRST SEMESTER

PGDCA-104: Practical based on PGDCA-102

1. Scheme of Examination: -

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

Program 1 (MS-Office)	-	15
Program 2 (MS-Office)	-	15
Program 3 (MS-Office)	-	15
Program 4 (Tally)	-	15
Viva-Voice	-	20
[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 remove all the limitations 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 typewriters (MIST) 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:
 - a. Computer
 - b. Printer
 - c. A word processing software
- (ii) Save the document as Word1.doc
- (iii) Move the second paragraph to the end of the document. Using drag & 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"
- (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:
 - Alignment justified
 - Indentation: left 0.2 right:0.2
 - Spacing: before 6 pt. 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

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Khan 27/4/19
D. Dutta
Ramesh 27/4/19
Bhan 27/4/19
Suresh 27/04/19

FIRST SEMESTER

- (xviii) Format the page using
- Left margin:0.5, right margin: 0.5
 - Top margin:1.5, bottom margin:0.5
 - Gutter Margin: 1 indentation: left 0.2 right:0.2
 - 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 ARTIFICIAL 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

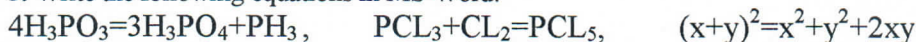
The information Processing Industry

The Positive impact on Using Organizations

The Potential Dangers for Using Organizations

- Search for the word 'Computer' in the entire document. All the occurrences of the given word are to be searched irrespective of the case.
- 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.
- Change the entire uppercase letter to lowercase.
- Give a heading to the above written text 'COMPUTERS IN TODAY'S WORLD'
- Centre aligns the Heading text Computer that appears in first line.
- Apply outside border to entire document.
- Apply outside border to the just heading text.
- 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
- Give a header 'Creations' and footer 'The school of computing'. The footer should also consist of page no's.
- Give appropriate commands for giving different header and footers for first page and odd & even pages.
- Save and close the document.

3. Write the following equations in MS-Word:



4. Write the following equations in MS-Word:



5. Write the following in MS-Word:

- Preheat the oven to 220°C.
- Copyright ©
- Registered ®
- Trademark ™

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

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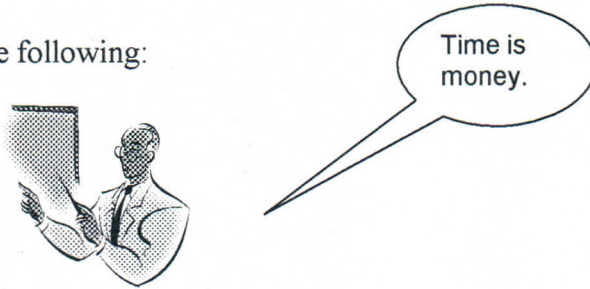
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FIRST SEMESTER

7. 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 code is like measuring aircraft building progress by weight.
--Bill Gates

8. Create the following:



9. Create the following:



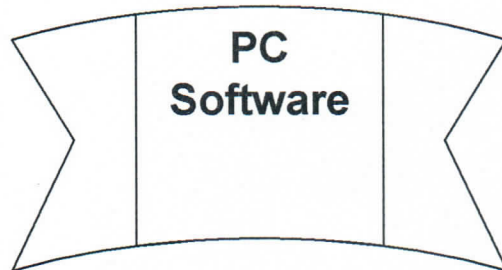
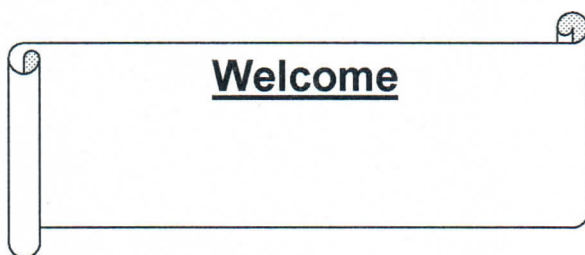
10. Create the following table in MS-Word:

<u>Admission 2011-2012</u>					
Course	OC	OB	MBC	SC/ST	Total
Computer Science	9	18	5	5	37
Commerce	14	25	6	5	50
Mathematics	12	20	4	4	40

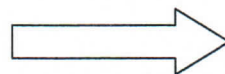
11. Create Table as shown

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

12. Insert the following in MS-Word.



13. Insert the following in MS-Word.



14. Write the following in MS-Word.

➤ This is sentencecase.

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FIRST SEMESTER

- this is lowercase.
- THIS IS UPPERCASE.
- This Is Capitalise Each Word.
- tHIS IS tOGGLE cASE.

15. Create the following list in MS-Word:

1. Actors

1. Bruce Willis
2. Gerard Butler
3. Vin Diesel

2. Actress

1. Julia Roberts
2. Angelina Jolie
3. Kate Winslet
4. Cameron Diaz

16. Write the following in MS-Word:

1. Cricket Players

3. Batsman

1. Sachin Tendulkar
2. Rahul Dravid
3. Virendra Sehwag

4. Bowler

- a. Kumble
- b. Zaheer Khan
- c. Balaji

5. Spinner

- a) Harbhajan
- b) Kumble
- c) Kartik

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

18. Create labels for your friends' address.

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FIRST SEMESTER

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 :

Pay Rate :

Worker's Name	Hired On	days Worked	Gross Wages
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)
Shirome5000	10	450		1200		
Somya9000	15	800		200		
Tanya7000	12	900		1800		

- Calculate the total salary as sum of Basic salary, HRA ,DA, for each employee for 1997
- Calculate total salary for year 1998 as sum of salary of 1997 and bonus
- 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		

- allow bonus 8000 to employee having service >2 year other wise allow bonus 3000
- 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

- find Total of two subject for each student
- find average of two subject for each student
- find class as average of average column
- find division of student as first, second, third, assume percentage of division of your own and maximum marks in each student as 100
- Apply conditional formatting for division column, first division should be in bold, second division should be in italic and third division should be underline

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

2. create bar chart with given data

2001 2002 2003

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FIRST SEMESTER

Tea	19	23	25
Coffee	22	24	22
Sugar	45	40	45

- (I) Provide heading production detail
- (II) Provide z axis title; lacks metric tone
- (III) Provide x axis title year

3. 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

1. Suppose a database exists in ms-access you are required to import the data. How will you?

11. Create a table using feature

Principle	1500
Rate	4%
Time	5

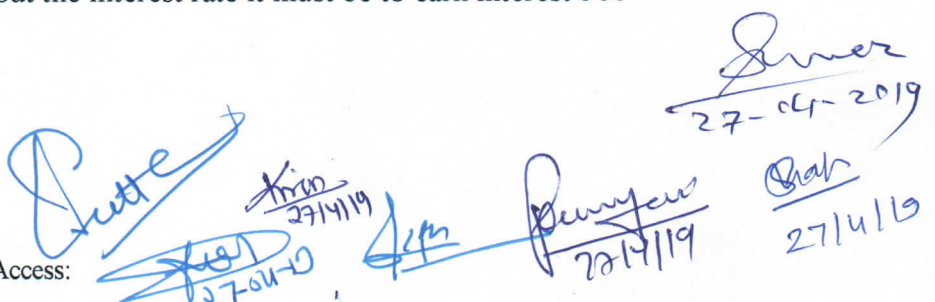
300	3	4	5
1%	45	60	75
2%	90	120	150
3%	135	180	225

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-Access

Q.1. Create the following table in MS-Access:



 Dute
 27/4/19
 Anju
 27/4/19
 Panyaw
 27/4/19
 Suresh
 27-04-2019
 Bab
 27/4/19

FIRST SEMESTER

Field Name	Data Type	Description
ContactID	AutoNumber	Primary Key
ContactType	Text 50	Type of contact (Wholesale, dealer, other)
Name	Text 50	Contact's first name
Company	Text 50	The Contact's employer
Address	Text 50	Contact's address
City	Text 50	Contact's city
State	Text 50	Contact's state
ZipCode	Text 50	Contact's zip code
Phone	Text 50	Contact's phone
Fax	Text 50	Contact's fax
E-Mail	Text 100	Contact's e-mail address
WebSite	Text 100	Contact's Web address
LastSalesDate	Date/Time	The most recent date the contact purchased something
DiscountPercent	Number	The customary discount provided to the customer
Notes	Memo	Notes and observations regarding this customer
Active	Yes/No	Whether the customer is still buying or selling products

Q.2. Create the following tables in MS-Access with the referential integrity-foreign key:

1. tblProducts

Primary Key - ProductID

ProductID	Description	Category	Quantity	Cost	RetailPrice	Product Number	SalePrice	Taxable
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2. tblSalesLineItems

Primary Key - SalesLineItemID

SalesLineItemID	InvoiceNumber	ProductID	ProductNumber	Quantity	Description	Price	Discount
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3. tblSales

Primary Key - InvoiceNumber

InvoiceNumber	SaleDate	InvoiceDate	Buyer	PaymentMethod	TaxLocation	TaxRate
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MS PowerPoint

Q 1 Create a PPT of Atleast 10 Slides with one slide for comparison, one slide displaying a chart with the table.

Q 2 Create a PPT presentation use rehearse timing for the slide show

Q 3 Create PPT presentation slide import sound and video clips.

Q 4 Create PPT presentation with hyperlinking.

Q 5 Create PPT presentation and apply themes and transitions.

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FIRST SEMESTER

PGDCA-105 : Practical based on PGDCA-103

1 Scheme of Practical Examination:-

Practical examination will be of 3 hours duration. All programs should be with flowchart & algorithms. The distribution of practical marks is as follows and

Programme 1 (with flowchart & algorithms)	-	20
Programme 2 (with flowchart & algorithms)	-	20
Programme 3 (with flowchart & algorithms)	-	20
Viva-Voice	-	25
[Practical Copy + Internal Record]	-	15
Total	-	100

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

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) * * * * *
* * * * *
* * * * *
* * * * *
* * * * *

c) *
* *
* * *
* * * *
* * * * *

b) 1
2 3
4 5 6
7 8 9 10

d) 1
2 1 2
3 2 1 2 3
4 3 2 1 2 3 4

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.
 - 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.

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FIRST SEMESTER


Array & Function


20. 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) 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 defined 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 punctuations in sentence.
22. Create a single program to perform following tasks using switch, if..else, loop, function 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, function 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.

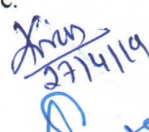
STRUCTURE & UNION

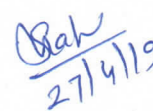
24. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare a structure variable of student. Provide facilities to input data in data members and display result of student.
25. Create a structure Date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

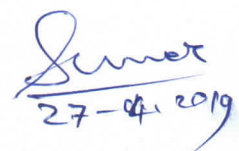
Use structure as argument to function and function returning structure.


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FIRST SEMESTER

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.

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SECOND SEMESTER

PGDCA-106

PROGRAMMING IN VB .NET

UNIT - I : Introduction to .NET framework

Overview of .net framework features & architecture, Managed Execution process, CLR, common language specification, JIT Compilation, MSIL, Namespaces, Assemblies, metadata, Common Type System, Visual development & event driven programming, cross language, interoperability, Garbage collection.

UNIT - II : Programming with .NET Framework

Windows form: working with Visual Studio IDE, creating a .NET solution, MDI application, components and controls, Data types, variables, Type conversions, Operators, Methods and events, Scope and life time of variables, Creating Enumerations.

UNIT - III Control Structures

Control Structures: conditional statements, loops, arrays, types of methods, method data, creating Sub Procedures and Functions, MsgBox, Inputbox, Introduction to exception handling-try catch statement, finally statement, throw, user define Exception.

UNIT - IV GUI Programming

GUI Programming with window forms, Showing & hiding forms, Textbox, RichText box ,Lable, Button, Listbox, Combobox, Checkbox, Picturebox, Radio button, Toggle Button,Panel, Groupbox, Scrollbar, Timer, Dialog boxes, OpenFile Dialog, SaveFile dialog ,Print dialog, Font dialog, Color dialog, Designing menus and sub menus.

UNIT - V Database programming with ADO.net

ADO .NET Architecture, .NET data provider, dataset components, creating database applications using Window forms (Database connectivity through ADO .NET), Accessing data using server explorer, Data Adapters & Data sets, Command & Data reader, data bind control, displaying data in data grid.

BOOKS RECOMMENDED

- ✓ MSDN online – by Microsoft
- ✓ Visual Basic .NET Complete - By BPB Publications, New Delhi.
- ✓ The Complete Reference VB .NET – By Jeffery R. Shapiro, Tata Mcgraw Hill.
- ✓ Professional VB .NET 2003 – by bill Evjen & others, Wiley Dreamtech India (P) Ltd. New Delhi.

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SECOND SEMESTER

PGDCA-107

Database Management Systems

UNIT – I: Introduction To DBMS

Purpose of database systems, views of data, Data Modeling, Database Languages, Transaction Management, Storage Management, Database Administrator and User, Database System Structure.

UNIT – II: E-R Model

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

UNIT – III: Relational Model

Structure to Relational Database, select, project, cross product different types of joins (inner join, outer joins, self-join); set operations, Tuple relational calculus, Domain relational calculus, Simple and complex queries using relational algebra, stand alone and embedded query languages.

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, De-Normalization.

UNIT – V: Introduction to RDBMS Software – SQL/Oracle

Introduction to personnel and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL* PLUS. **DDL and DML**: Creating Table, Specify Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting, Deleting and Updating Rows in as Table, Where Clause, Operators, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries. Views: What is Views, Create, Drop and Retrieving data from views. **Security**: - Management of Roles, Changing Password, Granting Roles & Privilege, with drawing privileges.

Recommended Books:

1. Data Base Systems : Silberschatz & Korth.
2. An Introduction to Data base System : C.J. Date
3. Data Base Management System : Raghu Ramakrishnan.
4. Data Base Management System : Elmasri & Nawathe.
5. Data Base Management System : Alexies & Mathews

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SECOND SEMESTER

PGDCA-108 INTERNET AND WEB TECHNOLOGY

UNIT – I

Introduction to Computer and Hardware: Introduction of Information Technology, History of Computers, Organization of computers, Number Systems, Programming language and types, Public domain software, Applications of Information Technology in business, industry, entertainment, science, engineering and medicine.

UNIT – II

Internet and its Application: Evolution of internet, Internet applications, TCP/IP, Addressing in Internet (IP), Domains, Internet service providers, Connectivity such as dial up, leased line, VSAT. E-mail protocols (X-400, SMTP, UUCP), Description of E-Mail headers, Email routing , e-mail client, POP-3, IMAP- 4.

UNIT – III

FTP and Telnet: Introduction to File Transfer Protocol(FTP), Types of FTP servers (including anonymous), Telnet protocol, Telnet client, Terminal emulation. Usenet and Internet relay chat, Web publishing tool, Website planning, Website Hosting , Multiple sites on one server, Maintaining a web site, WWW servers, HTTP & URLs, Registration of website on search engines , maintenance of website.

UNIT – IV

Dynamic HTML and Web Designing: HTML Basic concepts, Web designing issue, Structure of HTML documents, HTML Elements: Core attributes, Language attributes, Core Events, Block Level Events, Text Level Events, Linking Basics, Linking in HTML, Images and Anchors, Anchor Attributes, Image Maps, Semantic Linking Meta Information, Image Preliminaries, Image Download issues, Images as Buttons, Introduction to Layout: Backgrounds, Colors and Text, Fonts, Layout with Tables, Introduction to CSS.

UNIT – V

Internet Security: Internet security vulnerability and threats, Firewalls, Introduction to AAA, Malwares.
E-Commerce: Introduction, Concepts & technology, Advantages, Limitations, Various electronics payment system, Payment Gateways, Introduction to EDI.

Text Books:

1. Computers Today, S.K.Basadra ,Galgotia Publication.2nd edition.
2. Internet for Every One , Alexis Leon and Mathews Leon, Tech World.2008 print.

Reference Books:

1. Introduction to Computers, P.K.Sinha ,BPB Publication, 6th edition.
2. Fundamentals of Computers, V.Rajaraman ,Prentice Hall of India,4th edition.
3. HTML Complete Reference, Thomas A. Powell, TMH
4. Frontiers of Electronics of Commerce , Ravi kalakota & Andrew B. Whinston Addison Wesley ,1196

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Brah 27/4/19
Suman 27-4-2019
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SECOND SEMESTER

PGDCA-109: Practical based on PGDCA106

1. Scheme of Examination: -

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

Program 1	-	20
Program 2	-	20
Program 3	-	20
Viva-Voice	-	20
[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.

Practical List

1. Design the form that calculates Sum, Multiplication, Division and Subtraction of two numbers.
2. Design Simple calculator.
3. Design the form to input radius of a circle and find its circumference and area.
4. Design the form to input length in centimeter and convert it into meter.
5. Design the form to input temperature in Celsius and convert it into Fahrenheit.
6. Design the form to input Principal amount, Time, Rate and calculate Simple Interest and Compound Interest show result information in msgbox.
7. Design a form that shows following operation related to array.
 - a) Sort array elements in ascending or descending order.
 - b) To insert an element in an array
 - c) To delete an element from an array at specified position.
 - e) Print all unique elements in the array.
8. Design a form to check whether a number is PRIME or NOT, using input box and msgbox.
9. Design the form to show the result and percent of PGDCA.
10. Design the following form. So when user clicks on Radio Button then select appropriate checkbox.

The screenshot shows a Windows application window titled "Use Of Option Buttons, Checkbox". Inside the window, there are two columns of radio buttons. The first column is labeled "Gender" and has two options: "Male" (which is selected) and "Female". The second column is labeled "Age" and has three options: "Less Than 18", "19 to 40", and "Over 40". Below these radio buttons, there is a section titled "Rights" containing three checkboxes: "Drive Car", "Can't Drive Car", and "All Rights".

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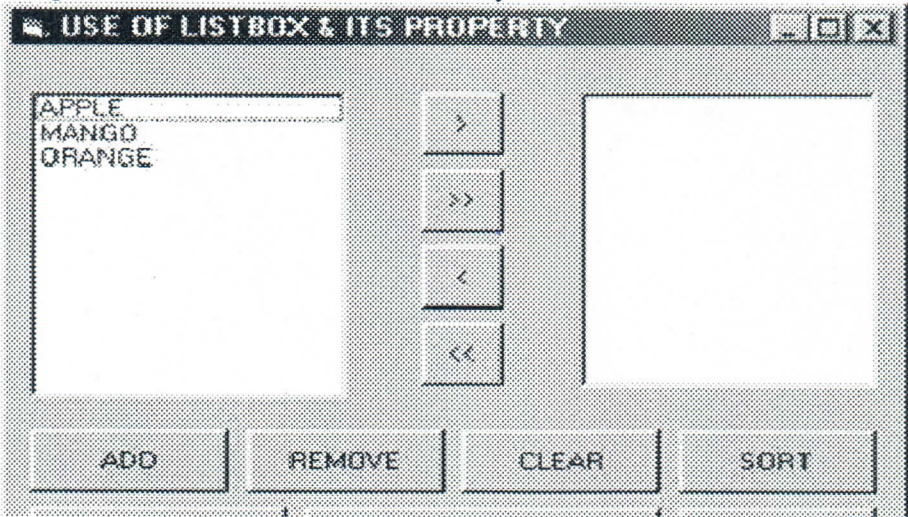
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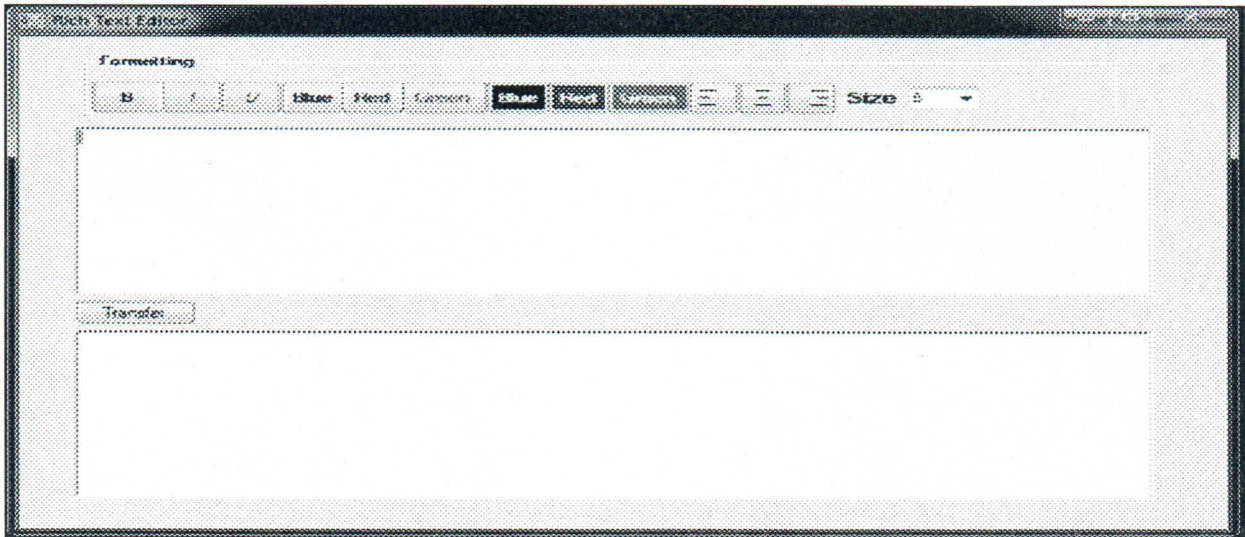
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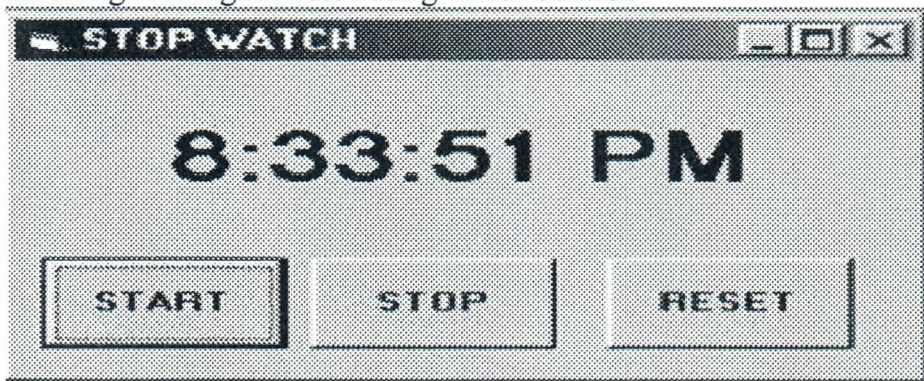
11. Design form that shows the functionality of listbox:



12. Design one form to create application like Rich text document using 1 Rich Textbox and different buttons. When user presses any of this command buttons then the selected content of Rich textbox Will be changed accordingly.



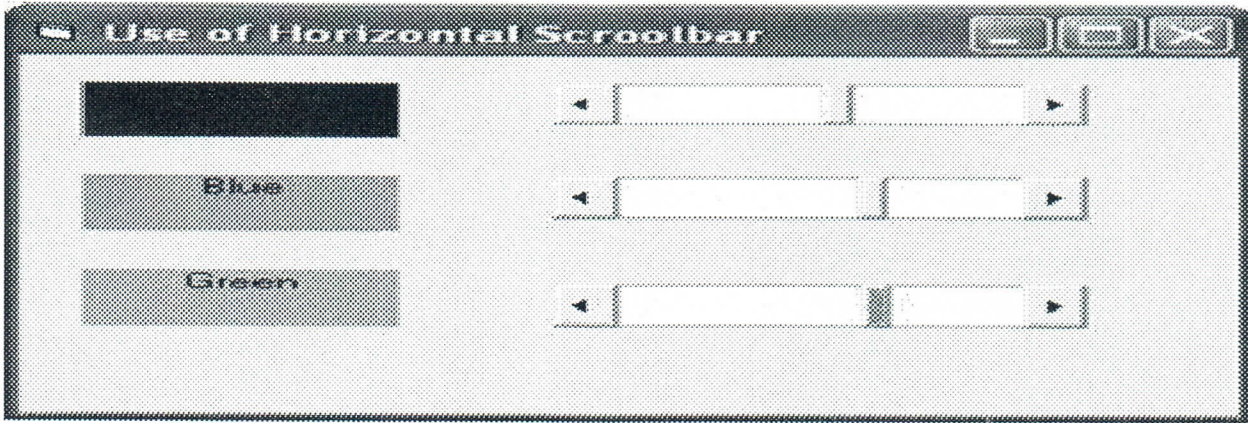
13. Design the digital watch using Timer Control.



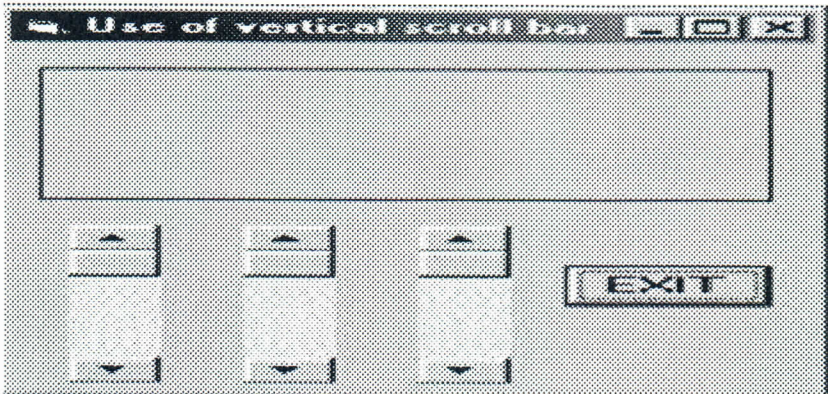
14. Design the following form using horizontal scrollbar. In this, when user click on particular scroll bar then back color of shape will be changed to Red, Green & Blue color

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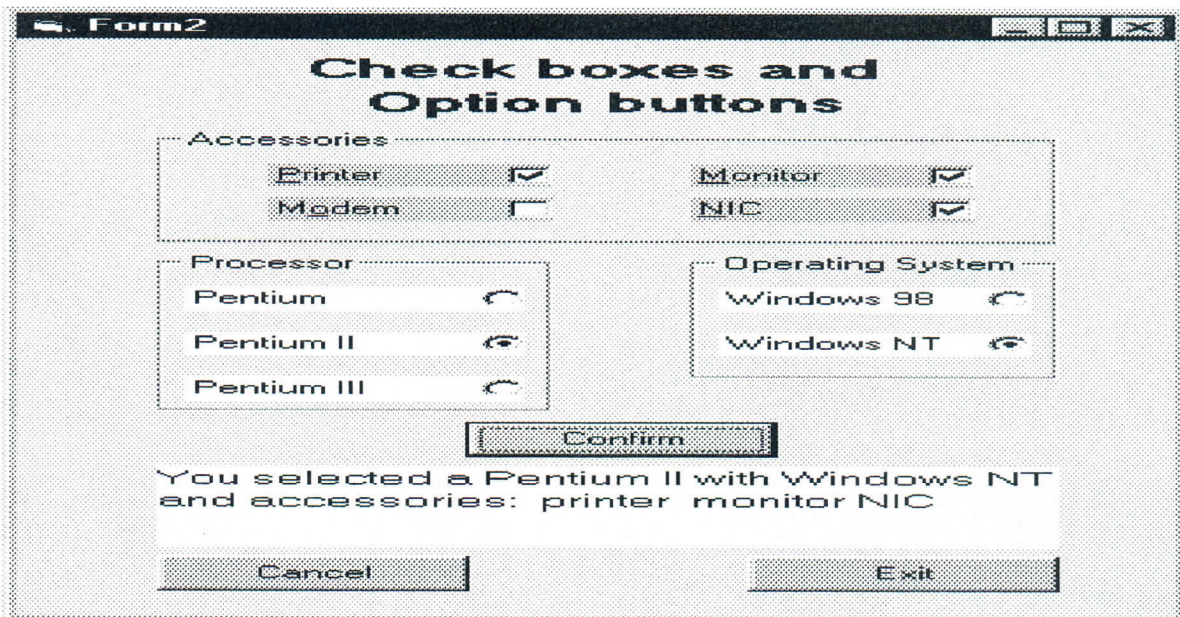
SECOND SEMESTER



15. Design the following form using vertical scrollbar. In this, when user click on particular scroll bar then back color of shape will be changed to Red, Green & Blue color



16. Design the form with different controls.



17. WAP for Exception handling of throwing an exception when dividing by zero condition occurs during arithmetic operation.

18. WAP in vb.net such that throw a user define exception when Temperature is zero.

19. WAP to demonstrate handling of multiple exceptions generated in program.

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SECOND SEMESTER

20. Create following table

Student(id, name, course, DOB, address)

Write vb.net application to

Add records

view all the records

Delete the particular record

View all the student who are studying in course PGDCA using DataSet.

21. Write vb.net application to maintain loan database using connected scenario

Loan(id, cust_num, name, amount, no_of_inst, amt_inst, no_of_inst_over)

Print all the customer who has to pay only one installment.

Print the total amount to be repaid by all the customer

22. Write vb.net application which accesses the following table.

Product_master (pdt_no, description, profit_percent, uni_measure, qty_on_hand, recorder_level, cost_price, sell_price)

Perform insert, delete, view and search for items whose cost price is less than sell price.

23. Write a vb.net application that perform insert, update and delete operations on Employee table & perform a navigation operation on employee records using disconnected scenario.

24. Create table STUDENT with the following columns and datatypes.

Sid Alphanumeric

Name Varchar(20)

DOB DateTime

Addr Varchar(20)

Contact Varchar(10)

1. Insert following records into the table:

Sid	S1	S2	S3
Name	OshoJuneja	NishantSahni	SanyaDua
DOB	28-jan-93	1-oct-92	30-jul-94
Addr	ABC	XYZ	PQR
Contact	9000000000	8000000000	7800000000

ii) Select records from table where age > 22. [Use DOB for age calculation].

iii) Count the record in the table.

iv) Display records of the table order by DOB.

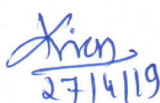
Perform using ADO.net in vb.net

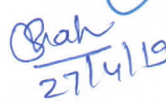
25. Write a vb.net program to show data in data grid view.

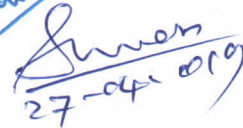

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SECOND SEMESTER

Practical based on PGDCA107 and PGDCA-108

1. Scheme of Examination: -

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

Program 1 (SQL)	-	15
Program 2 (SQL)	-	15
Program 3 (HTML)	-	15
Program 4 (HTML)	-	15
Viva-Voice	-	20
[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.

HTML

Q.1. 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

Q.2. Write an HTML program to create the following lists:

(I) C

(II) C++

(III) Fortran

(IV) COBOL

Q.3. Write an HTML program to create the following lists:

1. Java

2. Visual Basic

3. BASIC

4. COBOL

Q.4. Write an HTML program to demonstrate hyperlinking between two web pages. Create a marquee and also insert an image in the page.

Q.5. Write an HTML program to create frames in HTML with 3 columns (Width = 30%, 30%, 40%).

Q.6. Write an HTML program to create a web page with a blue 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.

Q.7. Write an HTML program to create the following table:

Admission

Course	OC	BC	MBC	SC/ST	TOTAL
Computer science	9	18	5	5	37
Commerce	14	25	6	5	50
Grand total					87

Q.8. Write an HTML program to create the following table:

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Datta 27/04/19
Kris 27/4/19
Bansari 27/4/19
Grah 27/4/19
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SECOND SEMESTER

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

Q.9. Write an HTML program to create the following table:

Students Records

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

Q.10. Create an HTML document and embed a flash movie in it.

Q.11. Write the HTML coding to display the following table. Also insert an image in the web page.

Subject	Max	Min	Obtain
Java	100	33	75
Multimedia	100	33	70
Operating System	100	33	68
C++	100	33	73

Q.12. Write the HTML coding to display the following table:

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

Q.13. Write an HTML program to create a form as the following:

Enter Name:

Enter Roll No.:

Enter Age:

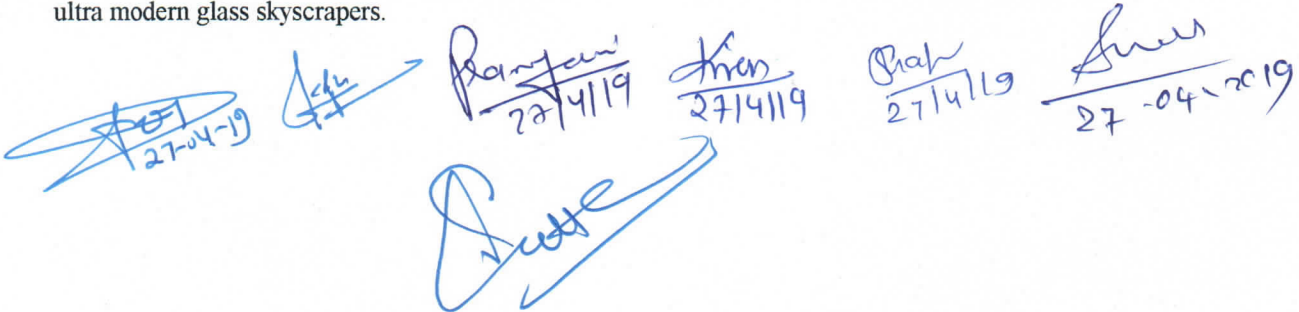
Enter DOB:

Q.14. 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.

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SECOND SEMESTER

Q.15. Create the following HTML form.

USERNAME :

PASSWORD :

When user types characters in a password field, the browser displays asterisks or bullets instead of characters.

Done My Computer 100%

Q.16. Create the following HTML form.

FIRSTNAME :

LASTNAME :

GENDER :
Male Female

SUBJECTS:
Multimedia
Operating System
CSA

Q.17. Create the following HTML form.

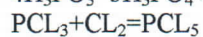
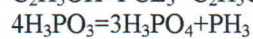
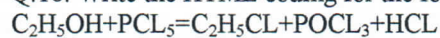
Enter your name :

Enter your rollno :

Subjects :
 Java
 C
 Visual Basic
 C++

Class:
BCA I
BCA II
BCA III

Q.18. Write the HTML coding for the following equations:



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SECOND SEMESTER

Q.19. Write the HTML code to display the following:

1. Actors

1. Bruce Willis
2. Gerard Butler
3. Vin Diesel
4. Bradd Pitt

2. Actress

1. Julia Roberts
2. Angelina Jolie
3. Kate Winslet
4. Cameron Diaz

Q.20. Write the HTML code to display the following:

1. Cricket Players

1. Batsman

1. Sachin Tendulkar
2. Rahul Dravid
3. Virendra Sehwag

2. Bowler

- d. Kumble
- e. Zaheer Khan
- f. Balaji

3. Spinner

- d) Harbhajan
- e) Kumble
- f) Kartik

SQL

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 –

- d. Create the above tables with the given specifications and constraints.
- e. Insert about 10 rows as are appropriate to solve the following queries.
- f. List the names of the teachers teaching computer subjects.
- g. List the names and cities of all staff working in your college.
- h. List the names and cities of all staff working in your college who earn more than 15,000

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SECOND SEMESTER

2. 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 –

- Find the staffs whose names start with 'M' or 'R' and ends with 'A' and/or 7 characters long.
- Find the staffs whose date of joining is 2005.
- Modify the database so that staff N1 now works in C2 College.
- List the names of subjects, which T1 teaches in this session or all sessions.
- Find the classes that T1 do not teach at present session.

3. 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 –

- Find the colleges who have most number of staffs.
- Find the staffs that earn a higher salary who earn greater than average salary of their college.
- Find the colleges whose average salary is more than average salary of C2
- Find the college that has the smallest payroll.
- Find the colleges where the total salary is greater than the average salary of all colleges.

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 –

- List maximum, average, minimum salary of each college
- List the names of the teachers, departments teaching in more than one department.
- Acquire details of staffs by name in a college or each college.
- Find the names of staff that earn more than each staff of C2 College.
- Give all principals a 10% rise in salary unless their salary becomes greater than 20,000 in such case give 5% rise.

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)

Write SQL statements for the following –

- Find all staff that do not work in same cities as the colleges they work.
- List names of employees in ascending order according to salary who are working in your college or all colleges.

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- c Create a view having fields sname, cname, dept, DOJ, and post
- d Create a view consisting of cname, average salary and total salary of all staff in that college.
- e Select the colleges having highest and lowest average salary using above views.
- f List the staff names of a department using above views.

6. Using 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)

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. 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

7. Using 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)

Write SQL statements for the following –

- 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.
- e. Delete all the records of student who live in city Raipur.

8. Subjects (paperid, subject, paper, papername)

Test (paperid, date, time, max, min)

Score (rollno, paperid, marks, attendance)

Students (admno, rollno, class, yearsem)

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 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

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