Syllabus of
B.Sc. (Information Technology)
Part II (Semester-II)

COMPUTER SCIENCE BOARD

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GONDWANA UNIVERSITY,
GADCHIROLI

SESSION 2013-2014
B.Sc. (IT) - II (Semester – II)

Paper-1 : Event Driven Programming with Visual Basic

Paper-2 : Data Structures

Paper-3 : Principal of Multimedia

Paper-4 : PC Maintenance and Troubleshooting

Paper-5 : Practical – I based on Paper 1 and 2

Paper 6 : Practical – II based on Paper 3 and 4
UNIT-I: Introduction to Visual Basic
Integrated Development Environment (IDE) – Features, Event Driven Programming,
Programming Constructs: Data Types, Variable, Constant, Operator, System Defined Function, Dialog Box and Creating User Interface
Control flow statement: if-then, select-case, for-next, while...Wend, do-loop statement. With...End, DoEvent.

UNIT-II: VB Control and Procedure
Visual Basic Control: Form, Label, Textbox, Frame, Checkbox, Option Button, ListBox, ComboBox, Timer, Scrollbar, Picture, Image, File Controls, Artwork Control
ActiveX Control: Tab Strip, Status Bar, Slider, Month View, DTPicker, Rich Text Box, Common Dialog
Procedure: Types of Procedure, Subroutine, Function, Module

UNIT-III: Menu, Interface and Array
Menu Editor, Creating Menus, Utility features provided by Menu Editor, Modifying Menu at Run Time, Pop-Up Menu, Creating Toolbar using Image List
Interface: SDI, MDI.
Array: One Dimensional Array, Built-in Array Function, For...Each Loop, Arrays Types.

UNIT-IV: ActiveX Data Object
Data & ADODC Control, Connecting ADODC to Bound Control, Use of ADO Object, ADO Architecture, ADO Object Methods for Editing, Updating and Searching Data Environment, Data Report,
Debugging and Error Handling: Types of Error, Debugging, Handling Run Time Error.

Books:

References:
UNIT 1: Introduction to Data Structures
Arrays: Introduction, Types of Arrays, Memory/Storage Representation of One and Two Dimensional Array, Multidimensional Array, Declaration of Array
Sorting: Definition of Sorting, Comparison of Sorting Method, Insertion Sort, Selection Sort, Merging.
Searching: Definition, Type of Searching (Binary Search, Linear Search)

UNIT 2: Stacks and Queue
Queues: Introduction, Applications of Queue, Various Representations of Queue, Operation on Queue, Concept of Deque, Priority Queues and Circular Queue.

UNIT 3: Recursion and Link List
Recursion: Introduction, Recursion Properties, Applications of Recursion (Factorial, Addition of Two Number, Power of a Number, Fibonacci Series, Multiplication of Two Number, Tower of Hanoi), Advantages and Disadvantages of Recursion.

UNIT 4: Tree and Graphs
Trees: Introduction, Definition of Trees, Binary Tree, Type of Binary Tree, Operation on Binary Tree, Traversal of Binary Tree, Binary Search Tree (BST), Expression Trees, Memory Representation of Binary Tree, Threaded Binary Tree, AVL Tree, B-Tree.
Graphs: Definition of Graph, Various Terminology Used in Graph, Sequential Representation of Graph, Path Matrix, Spanning Tree, and Minimum Spanning Tree (Kruskal Algorithm, PRIM’S Algorithm), Traversing a Graph.

Books:
2) Dr. S.B. Kishor, “Data Structure”, Das Ganu, ISBN : 978-81-921757-4-4

References:
UNIT I: Multimedia in use

UNIT II: Images, Audio, Video
Images:-Image & Application Image Capture, Compression (Introduction, Text Conversion, Vectorisation, Image compression), standards (standards for encoding images, standards for compression bitalon images, JPEG, Fractals for compression) Audio:-Audio application, Audio Capture (Music & Voice in computer), Compression, Standards (Audiovisual telephony & Application) Video:-video application, video capture (Converting video for the computer, creating videos on the Desktop, Real-Time video), television (Broadcast TV and video standards, high definition television (HDTV), compression, Standards (Audiovisual telephony & Application), proprietary compression (Digital Video Interactive, Other proprietary, techniques)

Unit III: Adobe Photoshop
Introduction to Adobe Photoshop CS3 , Working With Layers , Making Selections ,Incorporating Color Techniques , Placing Type In An Image ,Using Painting Tools ,Working With Special Layer Functions ,Creating Special Effects With Filters , Enhancing Specific Selections, Adjusting Colors ,Using Clipping Groups, Paths,& Shapes ,Transforming Type ,Liquefying An Image , Performing Image Surgery , Annotating and Automating An Image

Unit IV: Macromedia Flash
Introduction and How Flash Software Works, Steps to Do A Flash Movie, Basic Functions, Opening and Closing Files, Flash Windows, Window Control, Creating Objects, Drawing In Flash, Drawing Toolbar, Line Tool, Oval Tool, Rectangle Tool. Animation: Elements of Animation, Motion Twinning, Shape Twinning.

Books :

References:
B.Sc. (IT) – II
SEMESTER - II
Paper- IV: PC Maintenance & Troubleshooting
(4BIT4) (Marks-80)

Unit I: Preventive Maintenance

Unit II: CPU and Monitor
History & Study of Different Types of CPUs, Terminology Used with CPU, Data Processing Inside CPU, RAM & ROM, Different Types of ROM, Virtual Memory, Installing and Removing Memory. Video Cards and Monitors, Display Resolution, Features, Video Driver, CRTs Working, LCDs Working, Monitor Resolution, Interfacing, Refresh Rate, Monitor Driver, Adjusting Display Settings in Windows

Unit III: Study of Drives

Unit IV: Study of Printer, Formatting and Trouble Shooting

Books:
2. Basics of Computer Hardware - BPB Pub
B.Sc. (IT) – II
SEMESTER - II
Practical - I: Event Driven Programming with Visual Basic
(4BIT5)

1) Design a form to accept First, Middle and Last Name and display the full name (Concatenate three text box) on Label when user clicks on Command Button.

2) Design an application that gives five choices of colors. Design an application to choose any one color using option button and change the Fore Color of Textbox.

3) Write an application to add and remove the name of city from combo box.

4) Design a VB screen, to display current time in digital format continuously after every one second and change the background color of form.

5) Build the application, which marquee the caption of Form.

6) Build the application, to convert the Fahrenheit temperature selected through scrollbar value into corresponding temperature is Celsius.

7) Build a application that collects marks for five different subjects. Calculate total, If total is >= 500 display message” You are allowed” otherwise display “You are not allowed.”

8) A book stall gives discount on the books as per the following conditions,

<table>
<thead>
<tr>
<th>No. of Books Purchased</th>
<th>Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=5</td>
<td>Nil</td>
</tr>
<tr>
<td>&gt;5 and &lt;=10</td>
<td>10%</td>
</tr>
<tr>
<td>&gt;10 and &lt;=15</td>
<td>12%</td>
</tr>
<tr>
<td>&gt;15</td>
<td>20%</td>
</tr>
</tbody>
</table>

Create a form as follows to calculate the Discount.

9) Build the VB application that converts a number entered into the Textbox to Octal, Hexadecimal and Decimal.

10) Build the application; to accept the password within time limit say 8 second otherwise display a message time elapsed.

11) Build the application using timer for personal appointment remainder while working with computer system.

12) Evaluate following sin(x) series

\[ \sin(x) = x - x^3/3! + x^5/5! - x^7/7! + x^9/9! - \ldots \ldots \]

13) Build the application, to change the color of Frame using RGB function from the values that are set by 3 Scroll bars.

14) Build a Calculator application to perform basic arithmetic operation.

15) Build the application, to accept the temperature of Number of days passed in the current month and determines the highest and average temperature.

16) Demonstrate the working of data bound controls.

17) Create a data bound control application to perform various data operation using DAO Control. Assume Database Name and Table Name is Donor having 4 fields Donor_Number, Donor_Name, Date_of_Birth, Donor_Blood and Sex.

18) Create a data bound control application to perform various data operation using ADO Control. Assume Database Name and Table Name is Donor having 4 fields Donor_Number, Donor_Name, Date_of_Birth, Donor_Blood and Sex.

19) Write an application to divide the number by another and it must be able to handle any error that may arise during run time.
Practical - I: Data Structures

1) To delete an element from Kth position of Array.
2) To insert an element ITEM at Kth position of Array.
3) To insert an element Item in Sorted Array.
4) To implement the operation of Push, Pop and to know the status of stack.
5) An algorithm to check the status of stack.
6) To find factorial of a number using Recursion.
7) To find multiplication of two number using Recursion.
8) To simulation the game of Tower of Hanoi using recursion.
9) To implement the operation of insertion and deletion on Queue.
10) A menu driven program to implement the operation of addition, deletion, searching, traversing, reversion, sorting, counting number of nodes and at the end erasing the link list.
11) Implementation of stack using linked list.
12) Implementation of Queue using linked list.
13) To create binary search tree, traverse it and find number of leaves and total nodes in the Tree.
14) To arrange the list of number in a Sorted order using Merge Sort.
15) To arrange the list of number in the Sorted order using Quick sort.
16) To check all the element of list is in sorted order or not.
17) To search an element using sequential or linear search. At the end display time required to search an element including number of comparison.
18) To search an item position in sorted list (Binary search).
1) Study of LAYERS IN FLASH
2) STUDY OF TIME LINE IN FLASH
3) Study of Transition/ Background in flash
4) Simple presentation using FLASH
5) Study of Flash plug-ins
6) Pagemakers-use of toolbox and creation of simple letterhead or identity card of your institute.
7) Pagemaker- Design of a commercial color newspaper ad related to the exhibition of educational books in the size 2 columns x 10 cm
8) Photoshop- use of toolbox and creation of identity card of your institute.
9) Photoshop-study of toolbox and change the background colour and format the photo.
10) Coral draw-use of toolbox and creation of any greeting card.
Practical -II: PC Maintenance & Troubleshooting

1) Study of various input devices.
2) To study and installation of keyboard.
3) To study and installation of mouse.
4) Study of various output devices.
5) To study the installation scanner.
6) To study the installation of printer.
7) To study the installation of multimedia.
8) Study of different operating system.
9) Study of booting process.
10) To study assembling and deassembling the PC.
11) To study of installation of configuring motherboard.
12) To study and installation of VGA adaptor.
13) To study and installation of SMPS.
14) To study the installation of software.
15) To study and installation of antivirus software
16) Procedure to cleanup Disk, Disk fragmentation
17) Things to know while purchasing the computer.