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**Govt. KRG PG Autonomous College, Gwalior, MP**

**PGDCA – Session 2021-22**

Max. Marks : 100

Min. Passing Marks : 40

Subject to aggregate of 50% in total Examination.

**Second Semester April-May-2022**

**Paper - I**

**PGDCA 201 : Visual Basic**

**UNIT 1**-A profile of VB - Menus, Tool bar Buttons , Tool box, Form , Project, controls, Properties, Program window.  
Programming Essentials- General Procedures, Sub Procedures and function-designing,. Calling & passing controls as arguments , Constant & variable : Decleration, Scope and types.

**UNIT 2**-Designing a project :- start up form , Properties and Program design , Managing multiple forms.  
Flow of control - decisions - if statement , Else if clause ,Select case structure, Nested decisions.  
Loops :- Do loops , For loops ,

**UNIT 3**-Arrays ,Declarings arrays ,Multidimensional & dynamic arrays , User defined types :- Recorded structures, With statement array of records .  
Date file :- Random Access Files - Opening & closing of file , Put # , Get# ,Seek# statements.  
Text files - opening & closing file, Write# , Print# , Input # , Line input # statements.

**UNIT 4**-Input & Out put Procedures :- Defining a Menu , Control Arrays , Input Techniches - Validating & Formatting the Input , Moving the focus , Menu choices out put techniques - Calculation & Display , Drawing chart .

**UNIT 5**-Visual basic controls:- Intrinsic Controls, Custom control, Common dialog control , Printer object. Object, Classes and Collections :- Developing classes & collection MDI form , OLE controls . Data base connections.Data manager programme , Data control ,Bound controls.

**Reference:**

1. Foundation of Visual Basic - Douglas Hergert.
2. Visual Basic Programming Explorer- Peter G. Aitken.

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Paper - II

PGDCA 202 : Object Oriented Programming

## UNIT-I

Overview of C++ : Object oriented programming, Introducing C++ classes, Concepts of object oriented programming. Classes & Objects : Classes, Structure & classes, Union & Classes, Friend function, Friend classes, Inline function, Scope resolution operator, Static class members: Static data member, Static member function, Passing objects to function, Returning objects, Object assignment.

## UNIT-II

Array, Pointers references & The Dynamic Allocation operators : Array of objects, Pointers to object, Type checking C++ pointers, The This pointer, Pointer to derived types, Pointer to class members, References: Reference parameter, Passing references to objects, Returning reference, Independent reference, C++ 's dynamic allocation operators, Initializing allocated memory, Allocating Array, Allocating objects. Constructor & Destructor : Introduction, Constructor, Parameterized constructor, Multiple constructor in a class, Constructor with default argument, Copy constructor, Default Argument, Constructing two dimensional Array, Destructor.

## UNIT-III

Function & operator overloading : Function overloading, Overloading constructor function finding the address of an overloaded function, Operator Overloading: Creating a member operator function, Creating Prefix & Postfix forms of the increment & decrement operation, Overloading the shorthand operation (i.e. +=, -= etc), Operator overloading restrictions, Operator overloading using friend function, Overloading New & Delete, Overloading some special operators, Overloading [ ], ( ), -, comma operator, Overloading << .

## UNIT-IV

Inheritance : Base class Access control, Inheritance & protected members, Protected base class inheritance, Inheriting multiple base classes, Constructors, destructors & Inheritance, When constructor & destructor function are executed, Passing parameters to base class constructors, Granting access, Virtual base classes . Virtual functions & Polymorphism : Virtual function, Pure Virtual functions, Early Vs. late binding

## UNIT-V

The C++ I/O system basics : C++ streams, The basic stream classes: C++ predefined streams, Formatted I/O: Formatting using the ios members, Setting the format flags, Clearing format flags, An overloaded form of setf ( ), Examining the formatted flags, Setting all flags, Using width() precision() and fill(), Using manipulators to format I/O, Creating your own manipulators.

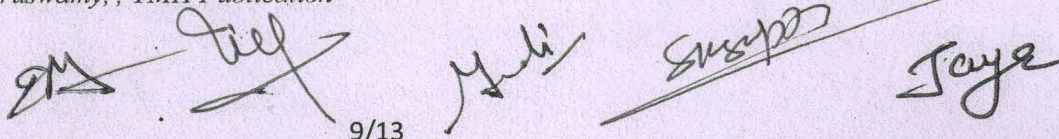
## TEXT & REFERENCE BOOKS :

C++ *The complete reference* - Herbert Schildt, - TMH Publication

*Object Oriented Programming C++* - R. Lafore

*Object Oriented Programming with C++* - R. Subburaj, Vikas Publishing House, New Delhi.

C++ - E. Balguruswamy, , TMH Publication



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Paper - III

### PGDCA 203 : Concept of DBMS Through FoxPro

**UNIT 1**-Introduction: database system, advantages of database systems- redundancy, consistency, sharing, standards, integrity, security, conflicting requirements and data independence, concept of distributed database, DBMS, component. Architecture of database systems: schema, sub-schema; logical and conceptual view. data description language (DDL), DML and database administrator.

**UNIT 2**-Data models: relational model-structure, tuple, attributes, relation normalization, key-primary key, candidate key, alternate key. relational calculus & relational algebra-concepts, definition of union, set difference, Cartesian product -selection, intersection, quotient and join. Normal forms : -first, second, third normal forms.

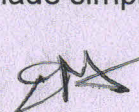
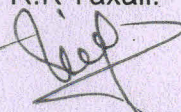
**UNIT 3**-Hierarchical and network model-concept, structure, advantages and disadvantages. protection and security : - types of crashes, security on databases.

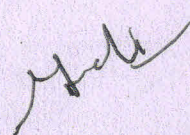
**UNIT 4**-FOXPRO-database file, record & field, field types, creating database file-defining, saving structure, entering, listing, removing, updating, searching, sorting, viewing records. closing database. Index - creating index files, multiple fields-compound & structural index, creating index - ascending, descending order, saving index file.

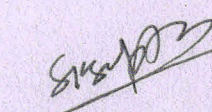
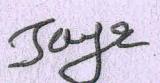
**UNIT 5**-Seek, index, sort, time, date, date arithmetic, mathematical functions-sqrt (), abs (), min (), max (), round (), mod (), Len (), mathematical commands sum average, count, calculate, do while-endo, skip, trim, accept, input, wait, if-end if, scan - endscan, for-end for, do case - endcase, text-enttext, handling multiple database database files-select, set relation, designing custom screen @--say-get and read, range, picture, designing custom screen using @ command @ prompt, define menu, popup features defining : size title character function - isupper(), islower(), replicate(), left(),right(),at().

#### Reference:

- 1) Introduction to database systems- C. J date.
- 2) Principles of database system Jeffery D Ullman.
- 3) FOXPRO made simple- R.K Taxali.

   
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Paper - IV

## PGDCA 204 Introduction to Internet Technologies

**UNIT- 1** Introduction of Internet : What is Internet , Services Of Internet , H/W & S/W Requirements to Connect to the Internet .E-mail, Introduction of WWW, Web Server and Web Client , Difference between the web and the Internet , Internet Service Provider (ISP). Web publishing Concepts, Domain name Registration, Space on Host Server for Web site,

**UNIT- 2** Choosing an Internet Service Provider :Location , Stability , Customer Service, Performance , Pricing , Establishing an Internet Account.

E-mail Basics : Running an E-mail Program , Sending mail, Reading mail, Replying to mail, Deleting mail. Newsgroups, mailing Lists , Chatting.

### **UNIT -3**

Data Transmission Protocols, Client/Server Architecture & its Characteristics, FTP & its usages. Telnet Concept, Remote Logging, Protocols, Terminal Emulation. Message Board, Internet chatting - Voice chat, text chat.

**UNIT -4** An Introduction to Internet Explorer : Starting Internet Explorer , A Quick Tour with Internet Explorer , At the Helm in internet Explorer, Viewing Various file Types .

Internet Search Engines: What is Search Engines , How do Search Engines work ? , Types of Search Engines.

**UNIT -5** Creating a Web Page : What is HTML , What can You Do with HTML , Creating , Saving and Viewing HTML documents , Applying Structure Tags , Applying Common Tags and attributes Images, Hyperlinks, Backgrounds and Colour controls, Different HTML tags, Table layout and presentation, Use of font size & Attributes, List types and its tags. Use of Frames and Forms in web pages. Creating a New Web, Opening an Existing Web, Creating , Opening and Saving Web Pages , Entering and Editing Text. Printing Page , Spell Checking, Finding or Replacing Text.

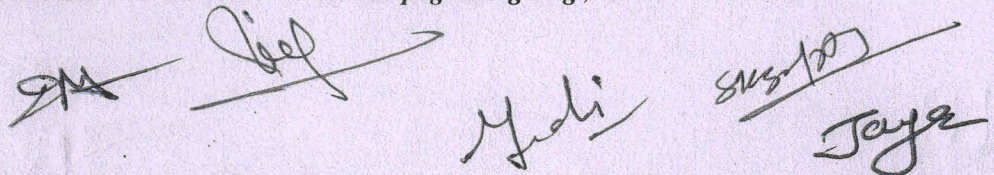
### **Reference:**

Alexis leon and Mathews Leon - Internet for every one (Tech World)

Douglas Comer - The Internet Book (prentice Hall)

SYBEX- bpb publication – Internet Complete (Second Edition).

V.K.Jain - O level Module - M 1.2 - Internet & web page designing , BPB Publications



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Paper - V

### PGDCA 205 - Introduction to Linux

#### UNIT - I

Linux introduction and file system - Basic Features, Advantages, Installing requirement, Basic Architecture of Unix/Linux system, Kernel, Shell. Linux File system-Boot block, super block, Inode table, data blocks, How Linux access files, storage files, Linux standard directories. Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, pwd, file, more, less, creating and viewing files using cat, file comparisons - cmp & comm, View files, disk related commands, checking disk free spaces. Partitioning the Hard drive for Linux, Installing the Linux system, System startup and shut-down process, init and run levels.

#### UNIT-II

Essential linux commands Understanding shells, Processes in linux process fundamentals, connecting processes with pipes, tee, Redirecting input output, manual help, Background processing, managing multiple processes, changing process priority with nice, scheduling of processes at command, cron, batch commands, kill, ps, who, sleep, Printing commands, find, sort, touch, file, file related commands-ws, sat, cut, dd, etc. Mathematical commands- bc, expr, factor, units. Creating and editing files with vi, joe & vim editor

#### UNIT-III

System administration Common administrative tasks, identifying administrative files - configuratinn and log files, Role of system administrator, Managing user accounts-adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, checking and monitoring system performance file security & Permissions, becoming super user using su. Getting system information with uname, host name, disk partitions & sizes, users, kernel. Backup and restore files, reconfiguration hardware with kudzu, installaing and removing packages with rpm command. Configure X-windows desktop-redhat-config-Xfree86, understanding XF86config file, starting & using X desktop. KDE & Gnome graphical interfaces, changing X settings.

#### UNIT-IV

Shell programming- Basic of shell programming, Various types of shell available in Linux, comparisons between various shells, shell programming in bash, read command, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, system shell variables, shell keywords, Creating Shell programs for automate system tasks.

#### UNIT-V

Simple filter commands - pr, head, tail, cut, paste, sort, uniq, tr. Filter using regular expressions - grep, egrep, and sed. awk programming - report printing with awk.

#### TEXTS & REFERENCES BOOKS :

*UNIX - Concepts & Applications (Third Ed.) - Sumitabha Das, Tata McGraw Hill Publications.*

*Unix for programmers and users (Third Ed.) - Graham Glass & King Ables, Pearson Education India. (Low Prices Edition).*

*Red Hat Linux 9 Bible - Cristopher Negus, IDG Books India Ltd.*

*LINUX Complete - BPB Publication*

  
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