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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.

First Semester Nov-Dec-2021

Paper - I

PGDCA 101 : Computer Fundamentals

UNIT 1 - Computer system concepts, Computer system characteristics, Capabilities and limitations, Types of computers-Analog, Digital, Hybrid, General, Special Purpose, Micro, Mini, Mainframe, Super, Basic components of a computer system - Control unit, ALU, Input/Output functions and characteristics, memory - RAM, ROM, EPROM, PROM and other types of memory. Data representation and codes, Decimal, Binary, Octal and Hexadecimal System and inter conversion, BCD numbers and ASCII codes.

UNIT 2-Computer hardware, Input devices- Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light pen, Touch Screen, Output devices- Monitors - characteristics and types of monitor -Digital, Analog, Size, Resolution, Refresh Rate, Interlaced / Non Interlaced, Dot Pitch, Video Standard - VGA, SVGA, XGA etc, Printers - Daisy wheel, Dot Matrix, Inkjet, Laser, Line Printer, Plotter, Sound Card and Speakers, Memory devices, RAM, ROM, Winchester drive, Mass storage devices, CD-ROM, Flash memory and their characteristics and uses.

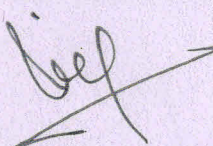
UNIT 3-System software - Assemblers, Translators, Interpreters, Compilers, Operating Systems - Functions, Types- Batch, Single, Multiprogramming, Languages : High level languages, Procedural and Object Oriented languages. Application Software – Word Processing, Spreadsheet, Presentation Graphics, Data Base Management Software.

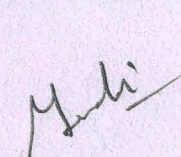
UNIT 4-Computer applications, Office automation, Industrial applications, CAD/CAM, Library information system, Digital image processing, Multimedia applications, Space research,

UNIT 5-Computer networking: Goals and applications, LAN, MAN, WAN Computer communication.: Communication modes : simplex, half duplex, full duplex. Types of Network - LAN, WAN, MAN etc., Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies, Components of LAN -Media, Bridges, HUB, Routers, Repeater and Gateways, communication Channels - Twisted, Coaxial, Fiber Optic, Serial and Parallel Communication, Modem - Working and characteristics, Types of Connections - Dialup, Leased Lines, ISDN, Use of Communication in daily life.

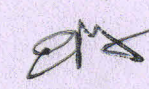
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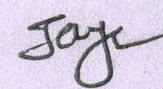
1. Introduction to Computers : C. Xavier 2nd Edition, New Age International
2. Fundamentals of Computers : V. Rajaraman 2nd Edition Prentice Hall of India
3. IT Today : S Jaiswal Galgotia Publication
4. *Computers Today*: S.K.Basandra, Galgotia Publications.
5. *Fundamentals of Information technology*: Alexis Leon & Mathews Leon, Vikas Publishing House, New Delhi











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PGDCA-102 Application Software Packages

UNIT – 1

MS Windows: Introduction to M.S. Windows; Features of Windows; Various versions of Windows & its use; Working with Windows; My Computer & Recycle bin ; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbars; Working with Files & Folders; Shortcuts & Autostarts; Accessories and Windows Settings using Control Panel; Start button & Program lists; Installing new Hardware & Software.

UNIT – II

Basics Of word:

Creating word documents; The word window, Entering Text . Editing Document text; Selecting Text, Copying and Moving Text. Applying Text Enhancements; Applying Fonts and Font Styles in Word, Highlighting Text For Distinctive Look. Aligning and Formatting; Aligning Text, Using Indentation Options, Setting Line Spacing Options, Using Tabs. Creating Lists, Numbers and Symbols; Numbering and Bullets, Creating Special Characters. Replacing and checking Text ; Creating and Applying Frequently Used Text, Finding and Replacing Text , More about Spelling and Grammar, Using the Thesaurus Command. Getting Into Print ; Using Print Preview, Changing Page Orientation and Paper Size, Aligning Text Vertically, Setting Margins, Printing Options.

Advanced Formatting Techniques in Word : Formatting Pages; Formatting Sections, Creating and Modifying Page Numbers, Creating Headers and Footers, Taking Care of Loose Ends. Working with Columns; Working with Newspaper Columns, Revising Column Structure. Constructing High-Quality Tables; Creating and Revising Tables, Modifying Table Structure, Formatting Tables, Using Tables Calculatingly. Working Smarter with Word; Using Templates. Creating Outlines in Word; Creating an Outline, Modifying an Outline

UNIT- III

Access Concepts & terms: database tables, relational databases, records, fields, controls & objects, queries & dynasets, forms, report, properties, wizards, macros, Access requirements, starting & quitting access, the access workspace & tool, views. Creating database & tables with & without wizard, field name, data types & properties, adding & deleting fields in fields, renaming fields & their caption, resizing fields, freezing columns, primary key field & indexing fields. Form: Form wizard, saving & modifying forms: Entering & Editing data, Finding, sorting & displaying data , queries & dynasets , creating & using select queries, using wild cards in queries, reformatting dynasets. Reports: Creating reports, previewing reports, printing reports, modifying, saving.

Relational databases – definition, purpose, creation, viewing, deleting. Expressions, Macros.

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UNIT - IV

Creating Excel Worksheets :

Entering and Editing Cell Entries; The excel Application Window, Workbooks and Worksheets, Moving the Cell Pointer, Entering Text and Numbers, Revising Text and Numbers. Working with Numbers; Creating Formulas, Formatting numbers. Changing Worksheet Layout; Adjusting Column Width and Row Height, Inserting and Deleting Rows and Columns, Inserting and Deleting Cells, Moving and Copying Cell Contents, Naming a Worksheets, Selecting Worksheets, Copying and Moving Worksheets, Inserting and Deleting Worksheets, Other Formatting Options; Aligning Text, Border and Color. Printing in Excel; Print Preview, Changing Page Setup, Checking Worksheet Spelling.

Advanced Techniques in Excel: Using Functions and References; Using Functions, Entering Functions, Relative and Absolute Cell References. Naming Ranges; Naming Ranges, Using Names. Creating Easy-to-Understand Charts; Pie Charts, Series Charts, Creating Charts, Moving, Sizing, and Printing Chart Objects Editing and Formatting Charts; Adding a Data Series, Deleting a Data Series, Modifying and Formatting Charts.

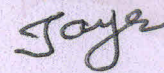
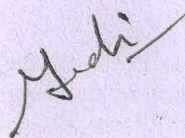
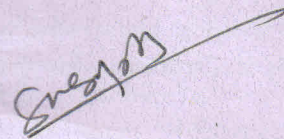
UNIT - V

Creating PowerPoint Presentations:

Creating a Basic Presentation, Building Presentations, Modifying Visual Elements, Formatting and Checking Text , Adding Objects, Applying Transitions, Animation Effects and Linking, Preparing handouts, Taking the Show on the Road.

Reference :

1. Microsoft Office 97 : Will Train , Gini Courter, Annette Marquis
bpb Publication.



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Paper - III

PGDCA 103 : Programming in 'C'

UNIT 1-Programming Fundamentals : Program Concept, Algorithms, Flow Charts - Symbols, Rules for making Flow chart, Types of flowchart, Advantage & Disadvantage, , **techniques of problem solving** : Programming Techniques – Top down, Bottom up, Modular, Structured - Features, Merits & Demerits, Programming Logic- Simple, Branching, Looping, Recursion, Cohesion & Coupling, Programming, Testing & Debugging & their Tools .

UNIT 2-Programming in C including features of 'C', Ctokens, Variables, Expressions, Identifiers, Keywords, Data Types, Constants, Operator and expression Operator: Arithmetic, Logical, Relational, Conditional and Bit wise Operators, Precedence and Associativity of Operators, Type conversion in expression, Basic input/output and library functions Single character input/output i.e. getch(), getchar(), getche(), putchar(),Formatted input output i.e. printf() and scanf().

Branching Constructs: if-else,switch, conditional operator & goto statements

If statement, If.....Else statement, Nesting of If...Else Statement, else if ladder, The ?: operator, goto statement, Switch statement, Compound statement, Loop controls, for, while, do-while loops, break, continue, goto statement.

UNIT 3- Functions: categories of functions User defined and library function , recursion, Function arguments, Return values and nesting of function, Recursion, Calling of functions, Scope and life of variables - local and global variable, Storage class specified - auto, extern, static, register.

Arrays : what is array, declaring initializing , 2D and 3D array. String: declaration, string functions – strcat, strcpy, strcmp, strlen, strstr.

UNIT 4-Pointers: operations on pointers, pointers Basic of pointers and operators, Pointers and function, Array of pointers, Pointer and strings, Pointer to structure, Pointers within structure ;The preprocessor, #define, defining functions like macros, #error,#include, conditional compilation directives i.e.

#if, #else, #elif and #ifdef & undef **Structures** : the concept of structure of structure , intilizing a structure, the structure tag, period operator , array of structure, structure and pointer, te arrow operator and nesting of structure. Unions : initialization and use of it in a program.

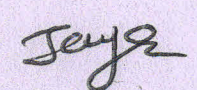
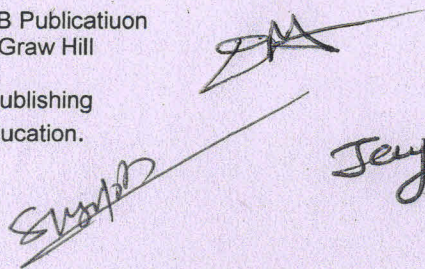
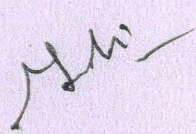
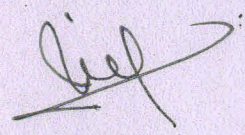
UNIT 5-File Management: Introduction – File handling, File structure, File handling function, File types, Streams, Text, Binary, File system basics, The file pointer,Opening a file, Closing a file, Writing a character, Reading a character, Using fopen(),getc(),putc(), and fclose(), Using feof(), Working with string fputs() and fgets(), Standard streams in C,Flushing astream, Using fread() and fwrite(), Direct access file, fseek() and random access I/O, fprintf() and fscanf(), Command line arguments

Reference:

1. Let us C
2. Programming in ANSI C
3. C Programming
4. The sprit of C
5. Programming with ANSI & Turbo C

Yashwant Kanitkar, BPB Publicatiuon
Balgurusuamy Tata McGraw Hill
Schaum's series
Mulish Cooper, Jaico Publishing
Kamthane, Pearson Education.

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Paper - IV

PGDCA 104 : Computer Organization and Architecture

UNIT 1-Component of computer system, number system, binary, octal, hexadecimal conversion, 1's compliment and 2's compliment, binary arithmetic - addition, subtraction character codes (ASCII, EBCDIC). Error detection and correction codes,

UNIT 2-Boolean Algebra - Representation of values and complement, AND, OR, NOT operators, d'morgan's theorem, simplifying expressions, truth table, logic gate : AND, OR, NOT, NAND, NOR, XOR, XNOR and karnaugh map method, combination logic design.

UNIT 3-Flip flops-clocked RS, D, JK flip flops. Counters - Ripple, Synchronous, Ring Counters. Registers - Buffer, Controlled Buffer Register. Addressing Techniques - Direct, Immediate, Indirect Addressing.

UNIT 4-Control Unit - Its purpose, instruction word, instruction cycle.I/O devices - Printers: Dot matrix, Electro magnetic, Thermal, Laser, CRT's, Keyboards.

UNIT 5-Memory- Main, Ram, Static & Dynamic, ROM, EPROM, cache memory, Auxiliary storage : floppy disk, introduction to microprocessor, interfacing buses, bus formats address, data and control.

Reference:

- 1) Digital computer fundamental-Thomas C Bartee
- 2) Computer system architecture-M.M Mano
- 3) Computer fundamentals (architecture & organization) B.Ram.

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Paper - V

PGDCA 105 : Information System Analysis and Design

UNIT 1-Overview of Systems Analysis and Design : Systems Development Life Cycle. Concept and Models : requirements determination. logical design, Physical design, test planning implementation planning & performance evaluation; communication, interviewing, risk and feasibility analysis.

UNIT 2- structures walkthroughs, and design and code reviews; prototyping; database design; software quality metrics; software evaluation and acquisition.

UNIT 3-Information requirement Analysis: Process modeling with physical and logical data flow diagrams, data modeling with logical entity relationship diagrams; Developing a Proposal: Feasibility study and cost estimation.

UNIT 4-Systems Design: Design of input and control, design of output and control, file design/database design, S/W design, cohesion ,coupling , user interface design; prototyping; documentation.

UNIT 5-Application Development Methodologies and CASE tools: Information engineering, structured systems analysis and design and object oriented methodologies for application development data modeling, process modeling, use of computer aided software engineering (CASE) tools in the analysis, design and implementation of information systems.

Reference: -

1. Haryszkiewicz, I.T., "Introduction of Systems Analysis and Design". Prentice Hall of India. 1989.
2. Rajaraman,V., " Analysis and Design of Information Systems". Prentice Hall of India. 1991.
3. Senn J.A., " Analysis and Design of Information systems". Tata McGraw Hill Book Company, 1986.
4. Whiten, J.K., Bentley, L.D., Beslow, V.M., " Systems Analysis and Design Methods". Galgotia Publications Pvt. Ltd. 1994.

