



# **University of Rajasthan Jaipur**

## **SYLLABUS**

**PGDCA**

**PGDCA 2015 -16 - I/II Semester**

P24

**PGDCA**

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# UNIVERSITY OF RAJASTHAN, JAIPUR

## PG DCA for affiliated colleges

### PG DCA 2015-16 – I/II Semester & Onwards

#### Eligibility :

All the graduate from recognized university situated in Rajasthan having 48% marks or CGPA of 3.0 in the UGC Seven Point Scale for general category (45% marks or CGPA 2.5 in the UGC Seven Point Scale for SC/ST/Non-Creamy layer OBC) in aggregate and minimum 60% marks for non-Rajasthan candidate. Reservation as per the University Rules.

#### Scheme of Examination for affiliated colleges:

1. Syllabus of University of Rajasthan campus is applicable for all affiliated colleges. (Appendix-II) psl
2. Each theory paper at EoSE carry 100 marks. The EoSE will be of 3 hours duration.
3. Part 'A' of theory paper shall contain 10 short Answer Questions of 2 marks each, based on Knowledge, understanding and applications of the topics/texts covered in the syllabus.
4. Part B of the paper shall contain four questions. One question will be set from each unit. Each Question will have three parts. Candidates are required to attempt all four units by taking any two parts from each question of the unit. Each question carry 20 marks.
5. Each Laboratory EoSE will be of four hour durations and involve laboratory experiments/ exercises, and viva-voce examination with weightage in ratio of 75:25.
6. Other rules/norms applicable for PG DCA for affiliated colleges as per rules/norms of the University campus PG DCA Course.

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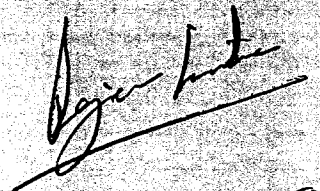
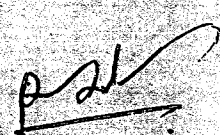
**Eligibility :**

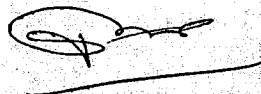
All the graduate (with 10+2+3) with at least 48% marks, for SC/ST only pass marks and for OBC 5% relaxation in eligibility percentage in graduation(i.e. 43 % Min) and minimum 60% marks for non-Rajasthan candidate. Reservation as per the University Rules.

**Scheme of Examination :**

1. Each theory paper EoSE shall carry 100 marks The EoSE will be of 3 hours duration. Part 'A' of theory paper shall contain 10 short Answer Questions of 10 marks, based on Knowledge, understanding and applications of the topics/texts covered in the syllabus . Each question will carry one mark for correct answer.
2. Part B of the paper shall contain five questions. One question will be set from each unit. Each Question will have internal choice. Candidates are required to attempt all five questions .Each question carry 14 marks.
3. Each Laboratory EoSE will be of four/six hour durations and involve laboratory experiments/ exercises, and viva-voce examination with weight age in ratio of 80:20.

EoSE: End of Semester Examination









## PGDCA-First Semester

| S. No.    | Subject Code | Subject Title                          | Course category | Credit | Contact Hours per Week |   |   | EoSE Duration(Hr) |   |
|-----------|--------------|----------------------------------------|-----------------|--------|------------------------|---|---|-------------------|---|
|           |              |                                        |                 |        | L                      | T | P | Thy               | P |
| 1         | T 101        | Fundamentals of Information Technology | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| 2         | T 102        | Operating System                       | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| 3         | T 103        | Office Management Tools                | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| 4         | T 104        | Programming in C                       | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| 5         | T 105        | Elective -I                            | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| Practical |              |                                        |                 |        |                        |   |   |                   |   |
| 1         | L101         | Programming in C                       | CCC             | 4      | 0                      | 0 | 6 | 0                 | 4 |
| 2         | L102         | Office Management Lab                  | CCC             | 4      | 0                      | 0 | 6 | 0                 | 4 |
| 3         | L103         | Elective Lab                           |                 |        |                        |   |   |                   |   |

## PGDCA-Second Semester

| S. No.    | Subject Code | Subject Title                          | Course category | Credit | Contact Hours per Week |   |   | EoSE Duration(Hr) |   |
|-----------|--------------|----------------------------------------|-----------------|--------|------------------------|---|---|-------------------|---|
|           |              |                                        |                 |        | L                      | T | P | Thy               | P |
| 1         | T 201        | Database Management System             | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| 2         | T 202        | Data Communication & Computer Networks | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| 3         | T 203        | Programming in C++                     | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| 4         | T 204        | Web Application Developments           | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| 5         | T 205        | Elective -II                           | CCC             | 4      | 3                      | 1 | 0 | 3                 | 0 |
| Practical |              |                                        |                 |        |                        |   |   |                   |   |
| 1         | L201         | Programming in C++ Lab                 | CCC             | 4      | 0                      | 0 | 6 | 0                 | 4 |
| 2         | L202         | Web Application Lab                    | CCC             | 4      | 0                      | 0 | 6 | 0                 | 4 |
| 3         | L203         | Mini Project                           |                 |        |                        |   |   |                   |   |

### Elective I

1. Accounting Using Tally
2. DTP using Pagemaker / Coreldraw

### Elective II

1. Computer Organization
2. System Analysis & Design

## T101: Fundamentals of Information Technology

### Unit- I

Defining IT, Information systems, Data and Information, Elements of Electronic data processing system, Transaction processing, Modes of transactions, its Applications : IT in Business and industry, IT in home and play, IT in education and training IT in entertainment and the Arts, IT in Science, Engineering, and ethical issues in IT.

### Unit II

Computer software and its types, Programming languages - Machine, assembly and high level, Language translators. Overview of the Digital Computer System - Operating Systems, Application Software, Types of Computers.

### Unit-III

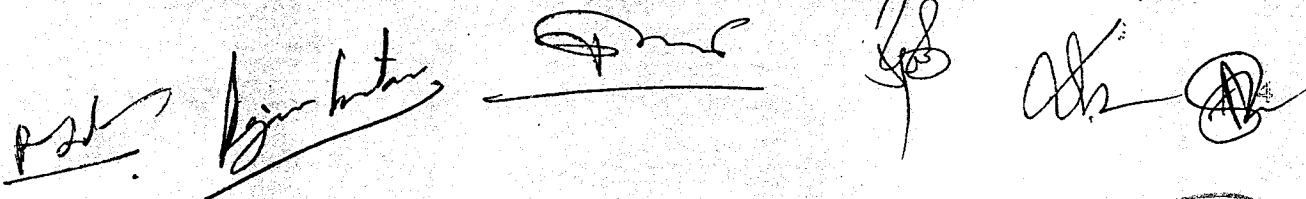
Representation of Data: Digital versus Analog, Digital number system (binary, octal, decimal and hexadecimal numbers,), Conversion from one form to another, fractional numbers and signed numbers, Complements, Arithmetic operations on binary numbers, Fixed point and floating point representations, Logic Gates (NOT, OR, AND), types Codes (ASCII, EBCDIC, Unicode), encoding and decoding.

### Unit-IV

Computer Components (Briefly overview) : Mother Board, Processor, types of RAM, RAM, Flash, Cache,; SDRAM, DDR), System clock, Buses (Data, Address, Control).

Input devices & output Devices -Printers, Scanner, different types of scanner

Storage devices : Storage types , random versus sequential access, formatting, tracks and sectors, speed, storage capacity, Hard Disk structure, Hard Drive Interfaces (IDE, EIDE, SCSI,



RAID, SATA, ATA). Optical Disks : pits and lands, CD (ROM, R, R/W), DVD (ROM, R, RAM), Magnetic tapes, Modem (Fax/Data/Voice).

#### Unit- V

Internet Applications: Internet, Internet Applications, e-Mail, IRC, Web Surfing, Web Browsers, Search Engines, Internet Service Providers, Downloading, Audio and Video Conferencing.

Security issues in Internet — Bugs, Viruses, Anti-viruses, Firewalls etc. Internet threats to the society, Cyber laws and Legal issues.

#### Suggested Reference Books:

1. M. Morris Mano: Computer System Architecture, 3 Hall of India, 2008.
2. John D. Carpinell: Computer Systems Organization & Architecture, 3 edition, Pearson Education Asia, 2008.
3. Peter Norton's Introduction to Computers, Third Edition, McGraw Hill
4. Sinha PK; Computer Fundamentals; BPB, 2002.
5. Malvino B.; Digital Computer Electronics; III Edn; TM)I.
6. Albert Paul Malvino, Electronic Principles, McGraw Hill
7. P. Pal Chaudhuri, Computer Organization and Design, Prentice Hall of India.

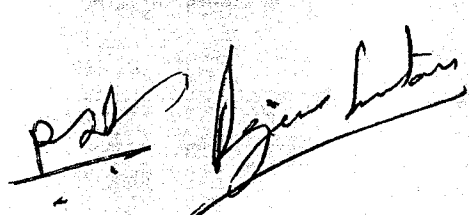
### PGDCA T102 : Operating Systems

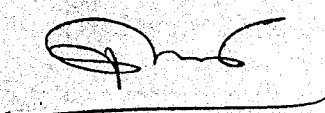
#### Unit-I

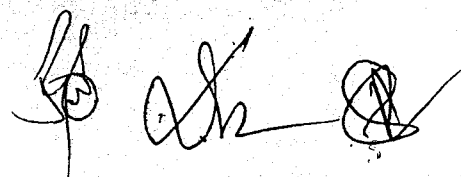
Necessity of an Operating System, Operating system structure, Evolution of Operating System (multiprogramming systems, batch systems, timesharing system, distributed systems and Real Time system), Operating system structure, Operating system components and services, system calls, system programs, Virtual machines.

#### Unit-II

Process management: process concept, process scheduling, cooperating processes, Threads, Inter-process communication, CPU scheduling criteria, Scheduling algorithms, Multiple-processor scheduling, Real time scheduling and Algorithm evaluation.







Process Synchronization and Deadlocks: The Critical section problem, synchronization hardware semaphores, Classical problems of synchronization, Critical regions, Monitors, Deadlocks-System model, Characterization, Deadlock prevention, Avoidance and Detection, Recovery from deadlock, Combined approach to deadlock handling.

### Unit-III

Storage management: Memory management- Logical and Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation with paging, Virtual Memory, Demand paging and its performance, page replacement algorithms, Allocation of frames, Thrashing, Page Size and other considerations, Demand segmentation

### UNIT -IV

File & Disk Management :File systems, secondary storage Structure, File concept access methods, directory implementation, Efficiency and performance recovery, Disk structure, Disk scheduling methods, Disk management , Recovery Disk structure, disk structure, disk scheduling methods, disk management, Swap-Space management, Disk reliability.

### Unit-V

Goals of Protection, Domain of protection, The Security problem, Program threats, Authentication, One Time passwords, program threats, System threats, Threat Monitoring, Encryptions. Computer Security techniques.

### Recommended books:

1. Galvin P.B, Silberschatz; Operating System Principles; ( Seventh Edition),J Wiley 2008
2. Tanenbaum A.S, Modern Operating Systems, 2<sup>nd</sup> Edn. PHI Publ,2003
3. William Stalling: Operating Systems, Internal & Design Principles, Sixth Edn; Pearson, 2009.
4. Gary Nutt: Operating Systems-A Modern Perspective (Second Edition) , Pearson Education, 2008.
5. D.M. Dhamdhare: Systems Programming and Operating Systems ( Second Edition), Tata McGraw Hill Publishing company Limited.
6. Harvey M. Deitel, Operating Systems, Pearson Education.

## PGDCA T103: Office Management Tools

### UNIT-I

The Need and Importance of Office Automation, Role of computer in Office automation and management, Office automation software.

Word Processing Software : Creating and Saving documents, Entering, Editing, Moving, Copying and Formatting Text, Page formatting, Finding and replacing text, Spell checking and Grammar checking, enhancing documents, Indexing, Columns, Tables and feature there in, Inserting (Objects, picture, files etc.), Using Graphics, templates and wizard, using mail merge, using WordArt, customizing, MS Word. Designing pages with MS Publisher, Inserting and Manipulating Objects, Editing Fills and re coloring pictures.

### UNIT-II

Spreadsheet Software Spreadsheet terminology, organization of the worksheet area, entering information, editing cells using commands and functions, moving copying, Inserting and deleting rows and columns, formatting worksheet, printing worksheet, creating charts, modifying and enhancing charts, using date, time and addressing modes, naming range and using statistical, mathematical and financial functions, database in a worksheet, creating, sorting, querying and maintaining the database, multiple worksheets and Macros, working with objects.

### UNIT-III

Data Base Management Software Planning a database (tables, queries, forms, reports), Creating and editing database, customizing tables, linking tables, designing and using forms, modifyir database structure, maintaining database, Sorting and Indexing database, Querying a database: and generating Reports, modifying a Report, exporting a Report to another format.

### UNIT-IV

Presentation Software Anatomy of a PowerPoint Presentation, Creating and Viewing a presentation, Managing Slide Shows, Navigating through a presentation, Using hyperlinks, advanced navigation with action setting and action buttons, organizing formats with Master

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Slides, applying and modifying designs, adding graphics, multimedia and special effects, creating presentation for the web.

## UNIT V

Office System user interface, Managing security and privacy in the MS Office System, Sharing documents between Office System Components and different versions of the office System.

Office management using Smart Devices

### Reference Books:

1. Microsoft; 2007 Microsoft Office System; PHI
2. Microsoft; Microsoft Office 2003 : Plain & Simple; PHI
3. Microsoft; Microsoft Office XP: Plain & Simple; PHI
4. Sanjay Saxena; A First Course in Computers 2003 Edition; Vikas Pub.
5. Joe Habraken; Microsoft Office 2003; Que; Techmedia.

## PGDCA T104 : Programming in C

### Unit-I

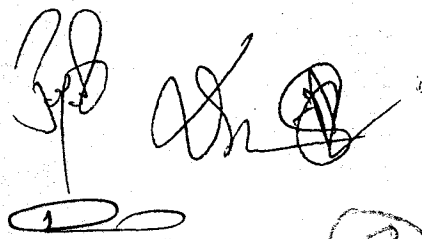
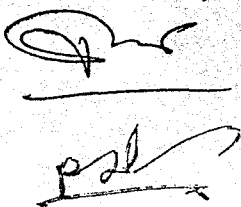
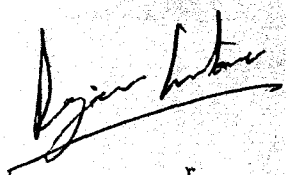
Problem solving with computers, Flow charts, Basic concepts of programming languages, programming domains.

C Character set, variables and constants, keywords, Type checking, Scope and lifetime data types. Operators, Instructions, assignment statements, arithmetic expression, comment statements, simple input and output, Boolean expressions.

### Unit-II

Control structures, decision control structure, loop control structure, case control structure. String and character handling, arrays and string processing, data validation examples.

Functions, function prototype, subroutines, scope and lifetime of identifiers parameter passing mechanism, recursion.



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### Unit-III

User defined data types, enumerated data types, unions, structures, array of structures, Unions of structures. Storage class specifies, Pre processors header files and standard lib, Functions.

### Unit IV

Pointer : Definition and uses of pointers, arithmetic , pointers and arrays, pointers and function, pointer to pointer, pointer to structures. Dynamic memory allocation.

### Unit-V

**Implementation of simple data structures :** Stacks, Queues, Linked Lists, trees, searching and sorting algorithms.

Console Input and Output functions, data files, operations on data files, text and binary files, formatted data files.

### Recommended reference books:

1. Gottfried B; Programming with C: Schaum Outlines; Mc Graw Hill Edition.
2. Balagurusamy E; Programming in ANSI C; Fifth Edn; Mc Graw Hill, 2011.
3. Kanetkar Y.; LET US C; X Edition, BPB, 2010
4. Deitel HM & Deitel JP; C How to program; 5<sup>th</sup> Edn; Pearson Pub.

### Practical Lab

1. Examination : L101 Programming in C

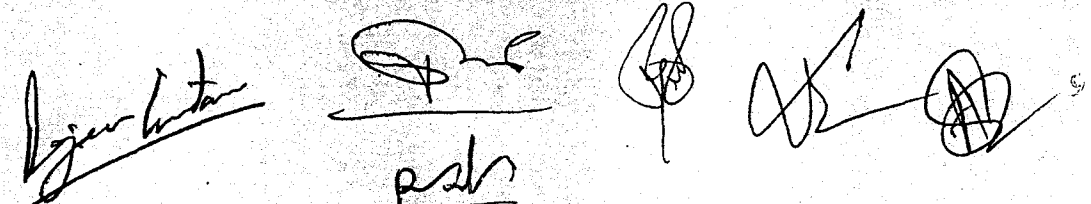
Lab Exercise on Theory Paper PGDCA T 104

2. Examination : L102 Office Management Lab

Lab Exercise on Theory Paper PGDCA T 103

3. Examination : L103 Elective I Lab

Lab Exercise on Theory Paper PGDCA T 105(A) OR PGDCA T 105(B)

  
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## PGDCA T201: Database Management Systems

### Unit-I

**Overview of DBMS:** Basic concepts, Database system architecture, Schemas, Instances, Components, Database users, Three-tier architecture, Centralized, Distributed and Client/Server architecture, Data independence. Database models: Entity relationship model, hierarchical model, relational model, network model, Object-Oriented data model.

### Unit II

**Data Modeling using ER Model:** ER model concepts, ER diagram, mapping constraints, Keys, Generalization, aggregation, reduction of ER diagrams to tables, extended ER model, Relationship of higher degree. Enhanced ER Model : Concepts, Specialization, Generalization, Data abstraction, Knowledge representation and University EER Model as example.

### Unit-III

**Relational Model :** Concepts, Constraints, Languages, Relational database design by ER & EER mapping, Relational algebra relational calculus.

Normalization : Normal forms – First, second, third and BCNF.

### Unit-IV

Transaction processing : Transactions atomicity, durability, serializability and isolation. Concurrency control techniques – Two phase locking, timestamp ordering, multiversion.

Granularity locking techniques, Database recovery techniques based on deferred & immediate updates and shadow paging.

### Unit-V

SQL: Characteristics of SQL, advantages, data types in SQL, SQL Operators, types of SQL commands, Tables indexes, Views Nulls, Aggregate Functions, Select statement, Sub queries, Insert, Update and Delete operations, Joins, Unions. .

#### Reference Books:

1. Korth H F and Silberschataz A, System Concepts, Sixth Edition; McGraw Hill, 2006
2. Leon, and Leon, SQL Tata McGraw Hill Pub. Co. Ltd.
3. Ivan Bayross; SQL/PL 4<sup>th</sup> Edn: BPB, 2009
4. Navathe S.B. Elmasri R.; Fundamentals of Database Systems, Fifth Edition, Pearson 2009.
5. Ramakrishnan and Gharke, Database Management Systems, 3<sup>rd</sup> Edition, Tata Mc Graw Hill, 2003.
6. Data C J Database Management Systems, Pearson Education Asia.
7. Singh S.K.; Database Systems, I Edition; Pearson, 2006.

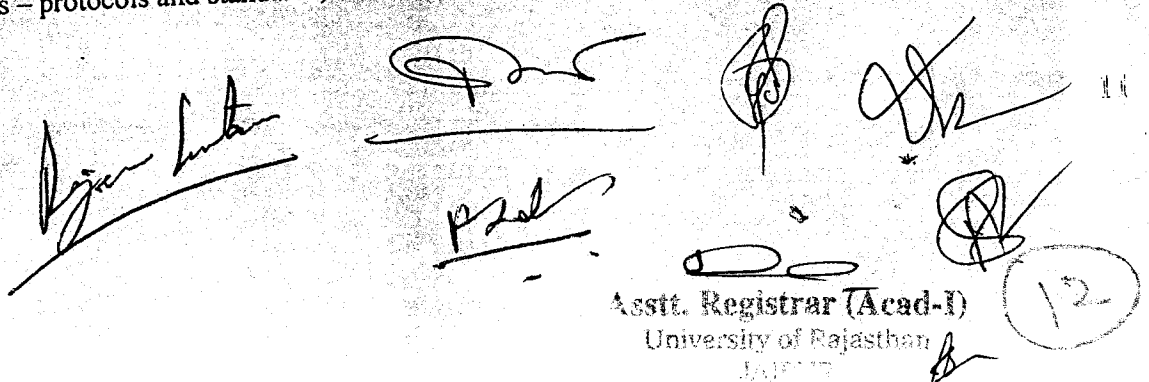
### PGDCA T202: Data Communication and Computer Network

#### Unit-I

Overview of Data Communication and Network: Basic concept –Computer communication methods, Data Transmission modes, Signals, Modulation – Principles of Modulation, AM and FM Modulator Circuits, Demodulation .

#### Unit II

Network Models : Internet model, OSI seven layer network model, Functions of OSI layers, LAN technologies – protocols and standards, LAN hardware, TCP/IP ( Protocols, architecture, layers, services).



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### Unit-III

Data transmission: Data Communication Systems, DTE-DCE Interface, Modems, Transmission media (Guided & Unguided), Multiplexing – FDM, WDM, TDM, Digital Subscriber Line (Operation, Layers, Traffic control), Microwave-Electromagnetic spectrum, Characteristics, Satellite- Artificial Satellite, Geosynchronous Satellites, Orbital classification, Spacing and Frequency allocation, Multiple accessing.

Optical fiber communication : Basic concept of light propagation, Fiber Cables, Light sources, Optical Detectors, Fiber cable losses, wave division multiplexing, fiber distributed data interface, the fiber channel

### Unit-IV

Internet: Internet Architecture, Internet protocol and datagram, Routing protocols, UDP, Internet standard services, DNS.

Networking Technology, ISDN ( Services, Channels, Layers, Broadband ISDN), Cable Modem System, SMDS, Frame relay, fast Ethernet, LAN and Gigabit Ethernet, FDDI and CDDI, Asynchronous Transfer, SONET ( architecture, Layers, frame, Applications), Switching Techniques

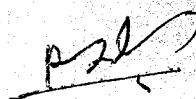
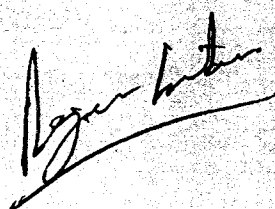
### Unit-V

Networking and Internetworking Devices : Repeaters, Bridges, routers, Gateways and roles of these devices in communication.

Network Performance, Analytical approaches, simulation, traffic monitoring, Network Management.

#### Recommended Books;

1. Behrouz A Foruzan, Data Communication and Networking; 3<sup>rd</sup> Edition; Tata McGraw Hill, 2004
2. Behrouz A Foruzan, TCP/IP Protocol Suite; 2<sup>nd</sup> Edition; Tata McGraw Hill, 2003.
3. Stalling William; Data and Computer Communication; 8<sup>th</sup> Edition Pearson, 2009.
4. Tannenbasum; Computer Networks; 4<sup>th</sup> edition, PHI 2008.
5. Wayne tomasim electronic Communications Systems, Pearson, Education Asia.
6. M.A. Miller, Data and Network Communications, Thomosn Kearning
7. Gilbert Held, Understanding Data Communication, Techmedia.
8. Fred Harshal, Data Communications Communications, Networks, Pearson Education Asia.



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## PGDCA-203: Programming Using C++

### Unit-I

Need of object Oriented Programming, Advantages of OOP, Comparison of Functional Programming and OOP approach, Essentials of OOP ( Objects, Classes, Encapsulation, Data abstraction, Inheritance, Reusability, Polymorphism, Delegation, Message Communication).

C++ Basics : Preprocessors, comments, Data types, Operators, Expressions, Loops and Decisions, Arrays and String handling, Modular programming with Functions, Structure and Unions.

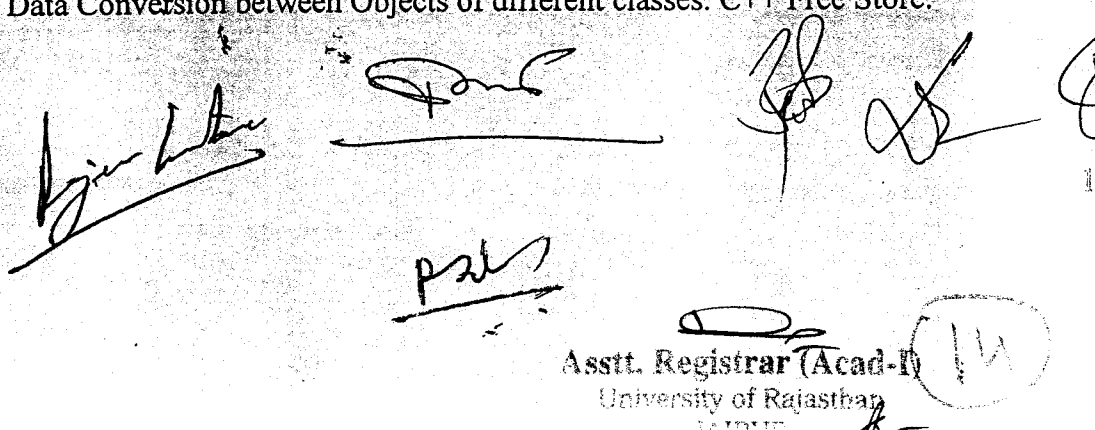
### Unit II

Pointers and Run time binding, Dynamic memory allocation, Storage class specifies. Classes. Member functions, Objects, Arrays of objects, Nested classes, Constructors, Destructors, Inline member functions, Friend Functions, Static member function.

Inheritance, Single Inheritance, types of base classes, types of derivations, multiple inheritance container classes, member access control.

### Unit- III

Functions Overloading, Operator Overloading, polymorphism, early binding polymorphism with pointers, Unary and Binary Operator Overloading, Overload Assignment Operator, Copy Constructor, Data Conversion between Objects of different classes. C++ Free Store.

The bottom of the page contains several handwritten signatures and stamps. On the left, there is a signature that appears to be 'Ajay Kumar'. In the center, there is a signature that looks like 'Ravi'. To the right of that, there are two more signatures, one of which is 'PSR'. At the bottom right, there is a circular stamp with the text 'Asstt. Registrar (Acad-I)' and 'University of Rajasthan' below it. There is also a handwritten number '14' inside a circle next to the stamp.

Virtual Function : Virtual Function, late binding, pure virtual functions, abstract classes, Generic Programming with Templates, Friend function, Overloaded Function Templates, Multiple Arguments function Template.

#### Unit-IV

Stream Computation with Console; Stream Computation with Files, opening and closing of file stream state member function binary file operations structures and file operations, classes and file operations, random access file processing.

#### Unit V

Templates, Generic Programming Concepts , Exception handling: Exception handling mechanism throwing mechanism, Catching mechanism.

#### Recommended Books

1. Herbert Schildt; C++ : The Complete Reference 4<sup>th</sup> Edn; TMH, 2003.
2. Robert Lafore; Object Oriented Programming in C++ 4<sup>th</sup> Edition; Techmedia.
3. Balagurusamy ; Object Oriented Programming in C++; 4<sup>th</sup> Edition TMH, 2009.
4. Venugopal, Rajkumar; Mastering C++; Tata Mcgrow Hill, 2006.
5. Kanetkar Y. : LET US C++; BPB; 2009.
6. Deitel and deitel; How to program C++, Addison Wesley, Pearson Education Aisa
7. John R. Hubbard, Programming with C++, McGraw Hill International.

### PGDCA T204: Web Design and Development

#### Unit-I

Creating and Maintaining Web Sites; Planning, Navigation and Themes, Site types and Architecture, Elements of a Web page, publishing and publicizing site/structuring web site. Search Engine Optimization,, Site Maps and other Navigation Aid, Site Delivery and Management.

## Unit-II

Introduction of HTML and XHTML : introduction markup language, editing HTML & XHTML: Common tags, headers, text styles linking, images, formatting text, horizontal rules and more line breaks unordered lists nested and ordered lists, basic HTML/XHTML tables: intermediate tables and formatting, forms, more complex forms, internal linking, creating and using image maps.

## Unit-III

Java script- introduction to scripting language, memory concepts, arithmetic decision making. Java script control structures, Java script functions, program modules in java script, function definitions duration of identifiers, scope rules, recursion java script global functions.

Array in Java script

## Unit-IV

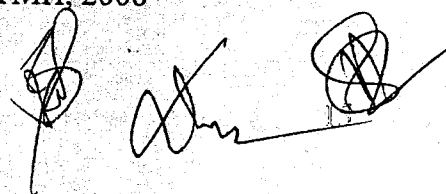
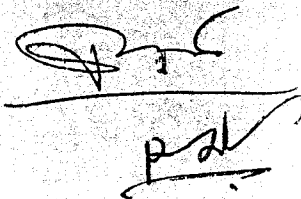
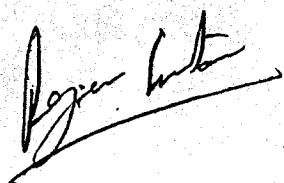
Cascading Style Sheet : introduction- inline styles, creating style sheets with the style element, conflicting styles, linking external style sheets, positioning elements, background element dimensions, text flow and the box model, user style sheets.

## UNIT V

Introduction to PHP: Advantages of PHP, functions, Data types, Arrays, MySQL, Connecting Databases using ODBC, Files, Forms, Images, IMap objects. Handling Form data in a secured manner. Security on Web Pages.

### Recommended Books:

1. M.L. Young; Complete Reference b: Internet; 2<sup>nd</sup> Edition; Tata McGraw Hill, 2006
2. Thomas A; Powel: Web Design ; C.R. : Second Edition TMH, 2009.
3. Thomas A. Powel : HTML & XHTML : C.R. Fourth Edition; TMH, 2008
4. Harely Hahn: the Internet, Tata Mc Graw Hill.



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5. G. Roverston; Hands on HTML., BPB Publication
6. D.A. Tauber, B. Kienan; Microsoft From Page 2000, BPB Publications.
7. Joel Sklar; Principles of Web Design BPB Publication

### Practical Lab

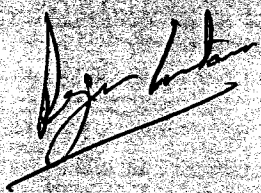
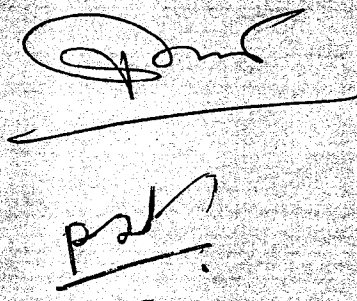
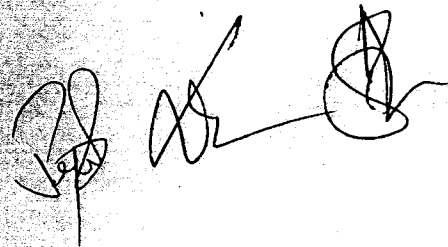
1. Examination : L201 Programming in C++

Lab Exercise on Theory Paper PGDCA T 203

2. Examination : L202 Web Application Lab

Lab Exercise on Theory Paper PGDCA T 204

3. Examination : L203 Mini Project

## Elective -I

PDCA105(A)-Accounting Using TALLY

### UNIT I

Introduction about Key Strokes, Students Tally Versions, Faculty

Business Organization: Service org., Trading org., Manufacturing org.

Accounting Principles, Concepts & Convention, Definition, Types of concepts

Types of Conventions

### UNIT II

Transactions: Types of accounts, golden rules. Types of Journal Book, Accounting voucher in Tally. Compound Journal Entry

Mode of Accounting: Posting, Trial balance

Financial Statement: Trading & P/L A/C. Balance Sheet, Processing Transaction in Tally

### UNIT III

Accounting with Tally

Accounting Basics, Understanding Ledgers & Groups, Understanding Voucher Types, Entering: Sales & Purchase, Payments & Receipts, Contra & Adjustments, Debit & Credit Notes. Reports: Printing - Exporting - Mailing, Bank Reconciliation & Printing Cheque.

### UNIT IV

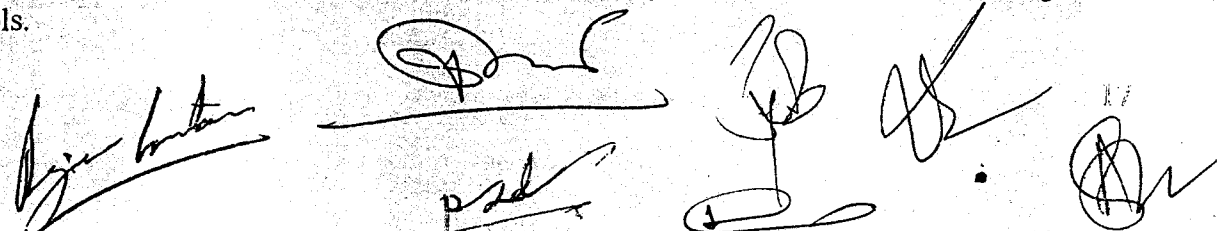
Inventory Management with Tally

Entering Inventory Details, Items with Groups & Categories, Multi Location, Stock, Stock Transfer & Manufacturing, Purchase & Sales Order, Costing: Cost Centers & Categories, Job Costing, Item Costing, Purchase Costing, Job Work, Using Batch wise Details Batch/Lot Number, Manufacturing & Expiry Dates. Multiple Price Levels.

### UNIT V

1 Taxation with Tally

Value Added Tax (VAT), Central Sales TAX, Manufacturer Excise, Dealer Excise, Service TAX, TDS, Payroll, Special Features: Multi Currency, Interest Calculation, Budgets & Controls.

  
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#### Reference Books

1. Tally ERP9 Series A reference Manual
2. Tally ERP9 – Dematech Press Easy & Simple

### PDCA105(B)- Desktop Publishing (DTP) using PageMaker / Corel Draw

#### UNIT I

##### Page Maker-

Creating a New Document: - Setting the Margins, Setting the Page Size, Changing the Page Orientation, Setting the Page Numbers, Changing the Page size view, Displaying Rulers, Changing the Rulers Measurement System, Using Rulers, Using Guides, Adding Guide lines to Master Pages, Aligning to Guidelines, Displaying Guidelines, Locking Guidelines.

Entering Text: - Changing the font Families, Changing font size, Changing typeface styles, Changing Character Specifications, Changing type leading, Changing character width, Changing tracking.

Saving your document: - Saving a new document, Saving Existing Document, Saving a document as another document, Reverting to a previously saved version.

Developing a Paragraph: - Typing a text, Adding special character to text, Aligning text.

Formatting Paragraph:- Changing Indents, Changing the Space around paragraph, Changing Paragraph Alignment, Controlling How paragraphs break between pages and columns, Adding lines above or below your paragraph.

Creating a Frame: - Converting other objects to Frames, Selecting text & Dragging Text, Editing Text, Cutting, copying and Pasting Text, Using Undo & revert.

Inserting & removing pages

Adjusting Hyphenation

Adjusting Indents and Tabs:- Setting and Changing Tabs, Setting and Changing Indents, Settings the Leader Style, Resetting the Tab Ruler.

#### UNIT II

##### Page Maker-

##### Adding Shapes

Changing lines and fill specifications, Changing Round Corner, Creating Header & Footer

Defining Style:- Creating a new style, Editing a style, Removing Style, Copying style, Applying style to text, Changing style.

Developing a long Document:- Using Story Editor, Switch between story editor and layout editor, Closing the story editor and placing the story, Checking your spelling, Using find feature.

Using Color:- Opening a color palette, Adding color to text, Defining a custom colors.

Printing:- Printing your document, Printing a proof copies, Setting paper options.

### UNIT III

Photoshop-

Introduction of Photoshop

Creating a New File:- Main Selections, Picking color, Filling a selection with color, More ways to choose colors and fill selections, Painting with paintbrush tool, Using the magic wand tool and applying a filter, Saving your document.

Color Mode:- Gray Scale Color Mode, RGB Color Mode, CMYK Color Mode, Bitmap Mode, Open a file, Preference.

Foreground & background:- Changing Foreground and Background colors, Using the Large color selection Boxes and small color swatches, Using the Eyedropper tool to sample Image color, Changing the Foreground Color While using a Painting Tool.

Using Brushes:- Millions of Brushes in One, Selecting the Brush Shape, Drawing a vertical and Horizontal Straight lines with any brush, Drawing connecting Straight Lines ( at any angle) with any brush, Creating a New Brush, Saving Brushes, Loading Brushes, Creating a Custom Brushes, Using the Painting Modes, Fade, Airbrush Options, Pencil Options.

Rubber Stamp Options:- Rubber stamps an Aligned Clone, Rubber Stamping, Impressionist Style, Using line tool.

Using the Editing Tool:- The Smudge Tool, The Blur and Sharpen Tool, The Dodge / Burn Tool, Shadows, Mid-tones and Highlights.

Selection Tools:- Making Rectangular and Square Selections, Feathering a Selections, Lasso Features, Lasso Options, Making selections by color or Gray Scale value using the Magic Wand, Moving an anchor point or Direction point to change the shape of curve, Adding and Removing Anchor points, Moving Path, Saving, Loading and Creating New Path, Filling & Stroking Path.

### UNIT IV

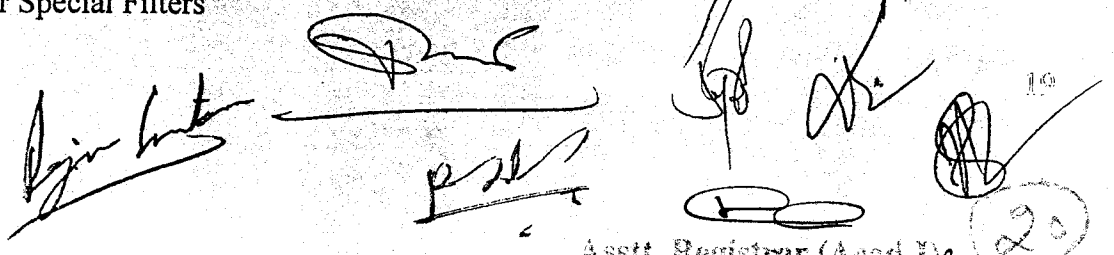
Photoshop-

Introduction of layers:- Creating & editing new layers, adding a background.

Creating Layer Mask:- Layer Masks, Adjustment Layers.

Adding Fills and Gradients:- Filling with paint bucket tools, filling type with grading fills.

Applying Filters:- Blur Filters, Render Filters, Sharpen Filters, Sketch Filters, Texture Filters, Other Special Filters

The bottom of the page features several handwritten signatures in black ink. To the right, there is a circular stamp containing the number '20'. Below the signatures, there is a printed line for a signature, followed by the text 'Asstt. Registrar (Acad-I)' and 'University of Rajasthan'.

Printing your document, save your file:- Save file as a JPEG, TIFF, GIF, PNG.

## UNIT V

### Coral draw-

Introduction to coral draw, use and importance in designing, various graphic file and file extension, vector image and raster images, introduction to screen and work area.

Introduction to tool of coral draw, managing palettes, working with images, patterns and textures, working with shapes, colors and fills, image rasterization and editing, transformation menu.

Coral draw files and supporting documents, import and export of files and file formats, page setup and designing, using styles and templates, working with text, formatting text, text attributes.

Designing different page layouts, column layout, working with layers, special effect to objects and texts, contour tool, layout for news paper and magazines.

Preparation of visiting card and invitation cards, Shaping Dockers and logo design, introduction brochure and books, introduction to magazine designing.

### Reference Books

1. Complete Reference of Page Maker- Tata McGraw Hill
2. DTP Publishing Mint Page Maker – Springer Publication.
3. Photoshop in Easy Steps- Tata McGraw Hill
4. Coral Draw an Official Guide- Tata McGraw Hill
5. Cavigage Learning- Bring it Home with Coral Draw
6. Coral Draw in Simple Steps- Wiley Publication

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## Elective II

### PGDCA T205(A):: Computer Organization

#### Unit I

Computer System History and Architecture development von Neumann machine, Mother Board, System clock, Bus (Data, Address Control), Bus architecture (ISA, MCA, EISA, PCI, AGP), Expansion slots and cards (Network adapter cards, SCSI card, Sound card, TV tuner card, PC card), Ports (Serial Parallel, AGP, USB Fire Wire), cables (RS 232, BIN), Input devices Output devices, Storage devices, random versus sequential access, formatting, tracks and sectors, speed, storage capacity, Floppy Disk, Hard Disk tracks, cylinders, sectors; Hard Drive Interfaces Optical Disks, Magnetic tape, Modern (Fax/Data/Voice).

#### UNIT-II

Building blocks of computer system:

Basic building blocks – I/O, Memory, ALU and its components, Control Unit and its functions, Instruction – word, Instruction and Execution cycle, branch, skip, jump and shift instruction, Operation of control registers; Controlling of arithmetic operations, Classification of Computers (Workstation, Mainframe, Super Computer, Client Server Computer, Notebook, Tablet, PalmTop Computer)

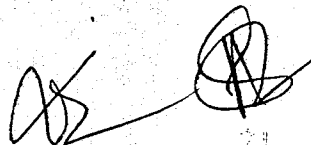
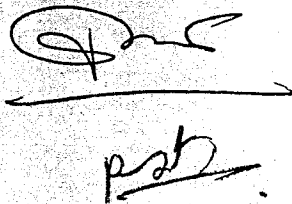
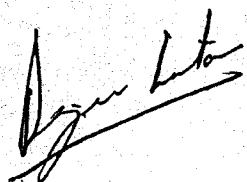
#### UNIT-III

Basics of Computer organization; system buses and instructions cycles, memory subsystem organization; system buses and instruction cycles, memory subsystem organization and interfacing, I/O subsystem organizations and interfacing, Register transfer languages. CPU design : specifying a CPU, design and implementation of a simple CPU (fetching instructions from memory, decoding and executing instructions, establishing required data paths, design of ALU, design of the control unit and design verification), design and implementation of a simple micro sequencer, Features of Pentium microprocessors.

#### UNIT-IV

Addressing techniques and registers:

Addressing techniques – Direct, Indirect, Immediate, Relative, Indexed addressing and paging. Registers – Indexed, General purpose, Special purpose, overflow, carry, shift, scratch, Memory Buffer register; accumulators; stack pointers; floating point; status information and buffer registers. Memory: Main memory, RAM, static and dynamic, ROM, EPROM, EEPROM, EAROM, Cache and Virtual memory.



## UNIT- V

Interconnecting System components:

Buses, Interfacing buses, Bus formats – address, data and control, Interfacing keyboard, display auxiliary storage devices and printers. I/O cards in personal computers.

Introduction to Microprocessors and Microcontrollers: introduction to 8085 micropocesor, examples of few instructions to understand addressing techniques. Difference between microprocessor and microcontrollers, RISC v/s CISC

### Recommended Books

Andrew S. Tanenbaum , Structured Computer Organization, Printice Hall

William Stallings, Computer Organization and Architecture , Sixth Edition, Pearson

Moriss Mano, Computer Organization,

## PGDCA-T205(B): System Analysis and Design Concepts

### Unit-I

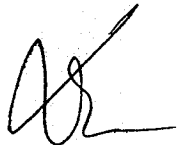
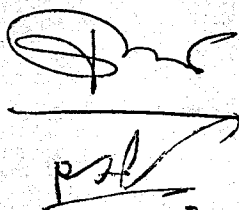
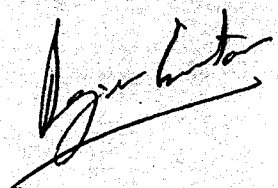
System Concepts and the information systems Environment: The System concept Definition, System Central Objectives, Elements of a system, Environment, Boundaries and interfaces. Types of systems- Physical or Abstract systems, Open or Closed systems, Role, Need and Responsibility of System Analyst. Introduction to system Development approaches- Data Oriented and Object Oriented.

System Development Life Cycle : Linear or Waterfall Cycle, Linear cycle, phases of SW Development Life Cycle.

System planning and Analysis : Strategies for determining information requirement, Problem definition & Project initiation, Background analysis, Data and Fact Gathering Techniques, Feasibility Studies- Technical, Operational, economic, cost benefit analysis, Interface design tools, user interface evaluations.

### Unit-II

System Design: Process modeling, Physical and logical design. Conceptual Data modeling, Entity Relationship analysis, ER modeling, Context diagram. Tools of structured analysis (DFD, Data dictionary, Decision Tree, Decision tables, Structured English). Structure Charts, Modules, Parameter passing. Execution sequence, Structured Design, Conversion from Data Flow Diagrams to Structure Charts.



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Input/Output Forms Design : Requirement of forms design, User Interface Design, Input design, CRT Screen forms design, Output design.

Files organization and Database Design : Designing to Fields, Physical records, Physical files, Database design, Data Structures, Normalization, Introduction to CASE Tools, Features, advantages, and limitations of CASE tools.

System Implementation, Maintenance and documentation, testing, evaluation, maintenance Activities, Documentation, Document configuration, maintaining a configuration.

### Unit-III

**Introduction to MIS :** Meaning and Role of MIS, Definition of MIS, System Approach to MIS, MIS Organization within a company. Concept of Balanced MIS, effectiveness and efficiency criteria.

**MIS Planning :** MIS structure and components, MIS features, problem and Derivation of MIS Plans, Prioration and development strategies.

**Conceptual Design of MIS :** Definition of problem, system objectives and system constraints, Analysis of information source, alternative system design and selection optimal system.

**Detailed System Design and Implementation;** Application of basic design concepts of MIS, Involvement of end-user and role of MIS department and System Analyst, Role of Top Management during design and implementation.

### Unit-IV

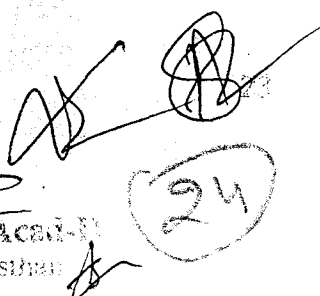
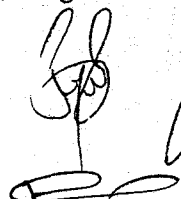
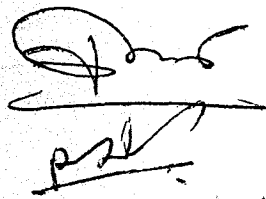
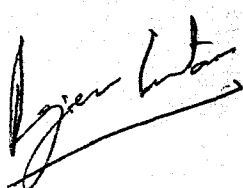
**System Evaluation :** System evaluation review and update, Management and control of MIS function, Advanced MIS concept, Pitfalls in MIS development.

**Decision Support System:-** DSS Definition, Characteristics, Application Case Study. Expert System : Concept Structure, Application and Case Study.

**Applications of MIS :** Applications of MIS to E-Business, Applications in Manufacturing sector, Service sector, DSS, Decision Support System, Enterprise Management Systems.

### Recommended Books

1. Awad E.M.; System Analysis and Design; Second Edition; Galgotia Publication.



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2. Igor Hawryzkiewycz, Introduction to System Analysis and Design, 4<sup>th</sup> edition. Prentice-Hall
3. Jain Mdulika, Jain Satish; Strucutred system Analysis and Design; 2<sup>nd</sup> Edition, 2007.
4. Jeffrey L. Whittren, and Lonnie D. Bentey, Systems analysis and Design Methods 4<sup>th</sup> edition Tata McGraw-Hill.
5. Philip L Weaver, Practical SSADM wer 4+A Complete Tutorial Guider, Pitman Publishing.
6. Don Yeates, Maura Shields and David Helmy. System Analysis and Design Longman group limited.
7. Robert Mudrick; Management Information System; PHL.
8. W.S. Jawadkar; Management Information System; McGraw-Hill.

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