Jagadguru Ramanandacharya Rajasthan

Sanskrit University, Jaipur

(**Computer Department**)

Syllabus for :

Post Graduate Diploma in Computer Application (One Year)

2023-24

Jagadguru Ramanandacharya Rajasthan Sanskrit University, Madau, Bhankrota, Jaipur- 302026

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

Eligibility :

All the graduate with 10 + 2 + 3 from recognized University.

For Non-Rajasthan candidate reservation as per the university rules.

Scheme of examination of PGDCA for the academic session 2023-24 and onward for affiliated colleges

1. The Syllabus will consist of 10 theory paper and 06 practical papers (Laboratories).
2. Each theory paper shall carry 100 marks for the University Annual examination of 3 hours duration.
3. The University Examination of the theory paper will consists of 6 questions on the pattern mention blow :-
    a. Candidate has to attempt six question in all.
    b. Question number 1 coveringwhole syllabus will consist of 10 short answer question carrying two marks each taking two questions from each unit.
    c. Question number 2 to 6 will consist of 5 Essay type question. Each question has 16 marks will be frame by taking one question from each unit there will be and internal choice within the unit.
4. Each practical paper shall be of 2 hours duration on one day and carry 200 marks for the practical examination. The Practical Examination will involve 4 exercises, each of 20 marks, practical record of 40 marks and viva-voce examination of 80 marks.
5. The medium of instruction and examination shall be English only but the candidate can be written its examination in English and Hindi both medium.
6. The minimum marks for passing each theory paper shall be 36% and 40% in all the theory papers. In the practical examination and Project Work shall be 50% separately.

7. In the University examination at the end of the final examination the candidate eligible for the award PGDCA degree shall be classified on the basis of marks obtained in complete Examination as follows

   a. First division with Honour - 75% or more marks in aggregate provided the candidate has passed all paper and examination in first attempt.

   b. First division - 60% or more marks but fails to satisfy the criterion for being classified distinction as lay in the 7 (a).

   c. Second division - All other than those included in 7(a) and 7(b) above and marks 48% or more but less than 60% of the aggregate marks.

   d. All the rest will be declared to have passed the examination if the obtain a minimum pass marks in each paper as mention in the point 6.

8. Candidate must pass the PGDCA course with three year of the initial admission to the course.

ANNEXURE - I

SYLLABUS FOR

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

Paper 1 - Computer Fundamental

Paper 2 - Introduction to Operating System

Paper 3 – Office Management Tools

Paper 4 – Window Programming with Visual Basic 6.0

Paper 5- Database Management System

Paper 6 - OOP's Programming With C++

Paper 7 – Introduction to Emerging Technologies

Paper 8- Internet Technology and Web Design

Paper 9 – Data Communication and Computer Networks

Paper 10 – Digital Marketing

Paper 11 - Practical Examination

Paper 12 - Project Work

Examination Pattern:

1. The University Examination of the theory paper will consists of 6 questions on the pattern mention blow :-
    a. Candidate has to attempt six questions in all.
    b. Question number 1 covering whole syllabus will consist of 10 short answer question carrying two marks each taking two questions from each unit.
    c. Question number 2 to 6 will consist of 5 Essay type question. Each question has 16 marks will be frame by taking one question from each unit there will be and internal choice within the unit.

परीक्षा पद्धति

विश्वविद्यालय परीक्षा के थ्योरी पेपर में 6 प्रश्नों के पैटर्न का उल्लेख होगा:-

a) उम्मीदवार को कुल मिलाकर छह प्रश्न करने हैं।

b) पूरे पाठ्यक्रम को कवर करने वाले प्रश्न संख्या 1 में 10 लघु उत्तरीय प्रश्न होंगे जिनमें प्रत्येक इकाई से दो प्रश्न लेकर - दो अंकों के होंगे।

c) प्रश्न संख्या 2 से 6 में 5 निबंध प्रकार के प्रश्न होंगे। प्रत्येक प्रश्न में 16 अंक के होंगे, प्रत्येक इकाई से एक प्रश्न लेकर इकाई के भीतर आंतरिक विकल्प होगा।

Paper – I Computer Fundamental

Max Marks : 100 Time : 3 Hours

Unit – I

Introduction to Computer – What is a Computer –Uses of Computer – Characteristics and Limitations of Computers – Units of Computer System – Block Diagram of computer –Type of computer – Analog, Digital and Hybrid Computer. Classification of computer Workstation, Mainframe, Super computer, Client-Server computer, Notebook, Tablet Palmtop computer. Generation of Computer. Programming language (Machine, Assembly and High Level Language) and Language Translators (Assembler, Interpreter and Compiler).

Unit – II

Introduction to hardware, Input /Output and Storage Devices – Input Devices – Keyboard, Mouse, Scanner, Light Pen, Touch Screen, OCR, MICR, BCR – Out Devices – Monitors, Printers, and Plotters – Computer's Memory – Internal and External Memory - Various Storage Devices

Unit – III

Software – Introduction – Types – System Software – Types, Features and Functions – Application Software –Representation of Data Digital number System (Binary, Octal, Decimal and Hexadecimal numbers) – Binary Arithmetic - Boolean Algebra – Logical Gates (NOT, OR, AND). Type of Computer Code (BCD, ASCII, EBCDIC, UNICODE).

Unit – IV

Computer Networks – Terminology – Server – Workstations – Network Hardware – Hub, Switch, Bridge, Router – Communication Channels – Topologies – Advantages of Networks – Types of Networks – LAN, MAN, WAN. Internet – Advantages and Disadvantages – www – protocols – FTP, HTTP, PPP, SMTP, TCP/IP, POP – Web Server – Web Browser – ISP – Types of Connections

Unit – V

Internet Applications – Web site – Types of Web sites – E-mail – IRC web surfing, Web Browser, Search Engine, Downloads Audio and Video Conferencing, E-commerce (Advantages and Disadvantages). Type of E-commerce. Security issues in Internet – Bugs, Viruses, Anti-Viruses, Firewall etc. Internet threats to the society, Cyber Laws and Legal Issues.

Suggested Reference Book :

1. Sinha P.K – Computer Fundamentals
2. M. Morris : Computer System Architecture.
3. John D. Carpinell : Computer System Organization & Architecture.
4. Vikas Gupta : Comdex Information Technology Course Kit
5. Rajaraman : Introduction to Computers

Paper – II Introduction to Operating Systems

Max Marks : 100 Time : 3 Hours

Unit-I

Operating Systems – Needs of an Operating System, Evolution of Operating System (Multiprogramming System, Batch system, Timesharing system, Distributed system, Real Time System). Introduction, Features, Functions, Structure of Operating System. Operating System components and services system calls, system programs, Virtual machines.

Unit – II

Process Management, process concept, process scheduling, cooperating process Threads inter-process communication, CPU scheduling criteria, Scheduling algorithms, Multiple processor, scheduling Real Time scheduling and algorithm evaluation. Process Synchronization and Deadlocks.

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, Threshing Page Size and Other consideration Demand segmentation

Unit – IV

Introduction – Features – File system – FAT, FAT 32, NTFS – Terminology – Window, Mouse Pointer, Desktop, Task Bar – Folder, Short Cuts – Working with Windows – Creating folders, Removing Folders, Renaming Folders, Creating Short Cuts, Parts of Window – My Computer – My documents – My Network Places – Internet Explorer – Recycle Bin – Moving Items to Recycle Bin, Emptying Recycle Bin. Control Panel – Adding and Removing Hardware – Adding and Removing Programs – Administrative Tools – Working with DATE & TIME – Changing Display Settings – Working with Fonts – Network Connections – Adding Printers –

Regional & Language Settings – Creating User IDs – Removing User IDs – Permissions

Unit – V

Linux - Introduction – Features and Advantages – Structure – File System – Shell – types of shells – Basic Shell Commands – mkdir, cd, ls, mv, cp, rm, cat, wild card characters – Creating files, file name conventions, File Access Permissions – working with vi editor – Working with Shell Script

Suggested Reference Book:

1. Comdex Information Technology Course Kit – by Vikas Gupta, Dreamtech
2. Operating Systems – CBH
3. Galvin P.B. Siberschatz : Operating System Principles
4. Tanenbaum A.S. Operating System
5. Willian Stalling : Operating System, Internal & Design Principles
6. Harvey M. Deitel, Operating System, Pearson Education

Paper – III Office Management Tools

Max Marks : 100 Time : 3 Hours

Unit – I

Introduction – What is an Office, Functions of Office, Structure of an Organization, Introduction to Office Automation –Need and importance of Office Automation. Role of computer in Office automation and management Office Automations Hardware and Software Requirements – MS – Office 2010 – Features – Components of MS – Office.

Unit – II

MS – Word – Introduction, Word Processor basics, Guide lines for typing, Menus in MS Word, Saving the Document, Opening the Documents, Previewing and Printing the document, Page Settings, Editing the document, Find, Replace and Goto, Header and Footer, Foot notes – Inserting Pictures, files – Organization chart – Working with Clip Arts, Auto shapes – Formatting the document, Bullets and Numbering, Document alignment – Spelling and Grammatical Check – Thesaurus – Mail Merge, Macros, Creating tables – Sorting, Converting, Applying Formula.

Unit – III

MS – Power Point Introduction – Features – Creating Presentations – Open the presentation, Saving – Slides – Inserting Slides – Delete slides – Normal, Slide Sorter, Slide Show, Grid Guides – Inserting Pictures, Sounds, Movie – Slide Design, Slide layout, Adjusting back ground, Using Templates – Slide Show, Action Buttons, Custom Animation.

Unit – IV

MS – Excel Introduction – Features – Spread Sheet basics – labels, Values and functions – Saving the Work book, Printing – Set print area – Cell and Cell Address – Cell Pointer – Mathematical Calculations – Formulas, Formula bar, Automatic Recalculation – Function – Arithmetic Functions, String Functions, Date and Time Functions – Financial Functions – Formatting Spread Sheet – Inserting and deleting rows, columns – Sorting – Adding a Sheet to the workbook – renaming the sheet – copying data between sheets – protecting the workbook – deleting sheet from the work book – Working with Charts

Unit – V

MS – Access Introduction – Features – Database – Under stating RDBMS – Objects of RDBMS – Tables, Queries, Reports – Functions of Database Management Systems – Creating a Database – Creating a Table – Fields, Data types, Field Name conventions – Indexes – Keys – Query – Creating a Query – Types of Queries – using criteria – building expressions – running the query – Working with Forms – Basic Controls – Properties – Navigating the records – Adding New Record – Deleting a Record from the Form – Working with Reports – Understanding the Sections of Reports – Basic Controls – Setting Properties – Previewing the Report.

Suggested Reference Book :

1. Microsoft : 2007/2010 Microsoft Office System
2. Microsoft : Microsoft Office 2007/2010: Plain & Simple
3. Sanjay Saxena : Afirst Course in Computer 2003 Educaiton
4. R.K. Taxali – MS Office
5. MS-Office – BPB publications
6. Comdex Information Technology Course Kit – by Vikas Gupta, Dreamtech

Paper- IV Window Programming With Visual Basic 6.0

Max Marks : 100 Time : 3 Hours

Unit - I

Introduction - IDE - Menu Bar - Toolbars - Project Explorer - Toolbox - Properties window - Form Designer - Form Layout - Immediate Window - Saving the Project - Elements of the User Interface - Designing the User Interface - Aligning the Controls - running the Applications - Event Driven programming - A few common properties - Common Methods - Common Events - Docking the tool bar

Unit - II

The Language - Declaring the Variables, Types of Variables, Converting the Variable Types, User - defined Data Types, Special Values, Examining the Variable Types - Scope of the Variable - Control Flow Statements - if .. then, if .. then .. else, Select Case statements - Loop Statements - Do .. Loop, For .. Next, while .. Wend, Nested Control Structures, Exit Statement - Arrays - Declaring Arrays, specifying the limits, Multi-dimensional Arrays - Dynamic Arrays - Control Arrays - Procedures - Subroutines - functions - calling procedures - Passing Arguments - File Handling

Unit - III

Working with Forms - Start up form, Loading, Showing and hiding Forms, Controlling one form from within another form - Designing Menus - Programming Menu Commands - Form events - Building Dynamic Forms at runtime - SDI and MDI - Multiple document Interface - MDI applications - Basics, Built-in Capabilities of MDI, Parent and Child Menus, Accessing child Forms, Loading and Unloading Child forms, Ending and MDI Application, Implementing Scrolling Forms.

Unit - IV

Database Programming - Introduction to DBMS - Recordset - Relational concepts - Primary Key, Foreign Key, Indices - Introduction to SQL - Data Control - Data Control Properties & Methods - Adding Records - Editing Records - Deleting Records - Updating the tables - Introduction to ADO control - ADO object Model - using ADO, Establishing Connection, Executing SQL Statements - Cursor Types and Locking Mechanisms, Manipulating the Recordset Objects, Simple Record Editing and Updating

Unit - V

VB & Web - Introduction to Web - HTML Pages - Server-Client Interaction - Structure of HTML documents - Basic HTML tags - Inserting Graphics - Tables - Frames - Forms & Controls - Building Parameter String - Contacting a Server Application - Connecting to Web server - ASP - Creating and ASP, Active and Server's Objects - Intrinsic Objects, Basic Objects - the Response Object - the Request Object - The Server Object - The Session and Application Objects - Start and End Events - Setting Up and ODBC Data Source - Opening the Database - Building a Recordset - Using the Record Set

Suggested Reference Book :

1. Visual Basic 6.0, Pragya Publications
2. Visual Basic 6.0, BPB Publications (Hindi Edition)
3. VB 6.0 Black Books
4. Mastering the Visual Basic 6.0 - BPB Publications

Paper V : DATABASE MANAGEMENT SYSTEM

Max Marks : 100 Time : 3 Hours

Unit -I

Overview of DBMS: Basic concepts: database, 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 diagram to tables extended ER model Relationship of higher degree Enhanced ER Model : Concepts, Specialization, Generalization Data abstraction knowledge representation.

Unit - III

Relational Model : Concept, constraints, Language relational database design by ER & EER mapping, Relational algebra relational calculus, Normalization: First Normal Form, Functional Dependencies, Decomposition, BCNF, Third Normal Form, Fourth Normal form

Unit - IV

SQL: Basic Structure, Features, Set Operations, Aggregate functions, Nested Sub queries, views, Joined Relations, DDL, DML, Domain Constraints, Referential Integrity, Assertions, Triggers, Security and Authorization.

Unit - V

Transaction Management: Transaction: Concept, State, Concurrent Executions, Serializability, Recoverability. Concurrency Control: Lock-Based Protocols, Timestamp-Based Protocols, Deadlock Handling. Recovery System: Failure Classification, Storage Structure, Recovery and Atomicity, Log-Based Recovery, Shadow Paging, Recovery with Concurrent Transactions, Buffer Management, Failure with Loss of Nonvolatile Storage, Advanced Recovery Techniques, Remote Backup Systems.

Suggested Reference Book :

1. Henry F.Korth, Abraham Silberschatz, Database System concepts, 3rd edition, and McGraw Hill publishing company Limited.
2. Korth H F and silberschataz A, System Concept; McGraw Hill
3. Leon, and Leon, SQL Tata McGraw hill Pub Co. Ltd.
4. Ramakrihan and Gharke, Database Management System
5. Data C J database Management System, Pearon Educaiton Asia

Paper – VI OOP's Programming with C++

Max Marks : 100 Time : 3 Hours

Unit- I

Object-Oriented Paradigm, Structured Versus Object-Oriented Development , Encapsulation and Data Abstraction, Inheritance, Delegation-Object Composition, Polymorphism, Message Communication, Popular OOP Languages, Merits and Demerits of OOPs Methodology, C++ at a Glance, Introduction, Data Encapsulation and Abstraction-Classes, Inheritance-Derived Classes, Polymorphism-Operator Overloading, Friend Functions, Polymorphism-Virtual Functions, Generic Classes-Class Templates, Exception Handling, Streams Computation, Introduction of C++,, Character Set, Tokens, Identifiers, and Keywords, Variables, Data Types and Sizes, Variable Definition, Variable Initialization, Characters and Character Strings, Operators and Expressions, Qualifiers, Typedef Statement, Promotion and Type Conversion, Constants, Declaring Symbolic Constants-Literals, Enumerated Data Types, Macro Functions, Operator Precedence and Associatively,

Unit- II

Control Flow Statements , Introduction, If Statement, switch statement, for Loop, while loop, do-while Loop, break statement, continue statement, goto statement, wild statements, Arrays and Strings, Introduction, Operations on Arrays, Modular Programming with Functions, Introduction, Function Components, Passing Data to Functions, Function Return Data Type, Library Functions, Parameter Passing, Return by Reference, Default Arguments, Inline Functions, Function Overloading, Function Templates, Arrays and Functions C++ stack, Scope and Extent of Variables, Storage Classes, Functions with Variables Number of Arguments, Recursive Functions, Structures and Unions, Introduction, Structure Declaration, Structure Definition, Accessing Structure Members, Structure Initialization, Nesting Of Structures, Array Of Structures, Structures and Functions, Data Type Enhancement, Using typedef, Structures and Encapsulation, Unions, Differences between Structures and Unions

Unit- III

Pointers and Runtime Binding, Introduction, Pointers and their Binding, Address Operator &, Pointer Variables, Void Pointers, Pointer Arithmetic, Runtime Memory Management, Pointers to Pointers, Array of Pointers, Dynamic Multi-dimensional Arrays, Pointer Constants, Pointers and String Functions, Environment Specific Issues, Pointers to Constants Objects, Constant Pointers, Pointer to Structures, Wild Pointers, Classes and Objects, Introduction, Class Specification, Class Specification, Class Objects, Accessing Class Members, Defining Member Functions, Outside Member Functions within the Class, Data Hiding, Access Boundary of Objects Revisited, Empty Classes, Pointers within a Class, Passing Objects as Arguments, Returning Objects from Functions, Friends Functions and Friend Classes, Constant Parameters and Member Functions, Structures and Classes, Static Data and Member Functions, Class, Objects and Memory Resource, Class Design Steps, Object Initialization and Cleanup, Class Revisited, Constructors, Parameterized Constructors, Destructor, Constructor Overloading, Order of Constructions and Destruction, Constructors with Default Arguments, Nameless Objects, Dynamic Initialization through Constructors, Constructors with Dynamic Operations, Copy Constructor, Constructors for Two-dimensional Arrays, Constant Objects and Constructor, Static Data Members with Constructors and Destructors, Nested Classes Dynamic Objects, Introduction, Pointers to Objects, Live Objects, Array of Objects, Array of Pointers to Objects, Pointers to Object Members, Function this Pointer, Self-referential Classes, Guidelines for Passing Object Parameters

Unit- IV

Operator Overloading, Introduction , Unary Operator Overloading, Operator Keyword, Operator Return Values, Limitations of Increment/Decrement Operators, Binary Operator Overloading, Arithmetic Operators, Concatenation of Strings, Comparison Operators, Arithmetic Assignment Operators, Overloading of new and delete operators, Data Conversion, Conversion Between Basic Data Types, Conversion Between Objects and Basic Types,

Conversion Between Objects of Different Classes, Subscript operator Overloading, Overloading with Friend Functions, Assignment Operator Overloading, Tracing Memory Leaks, Niceties of Operator Overloading and Conversions, Inheritance, Introduction, Class Revisited, Derived Class Declaration, Forms of Inheritance, Inheritance and Member Accessibility, Constructors in Derived Classes, Destructors in Derived Classes, Constructors Invocation and Data Members Initialization, Overloaded Member Functions, Abstract Classes , Multilevel Inheritance, Multiple Inheritance, Hierarchical inheritance, Multi-path inheritance and Virtual Base Classes, Hybrid Inheritance, Object Composition-Delegation, When to Use Inheritance?, Benefits of inheritance, Cost of Inheritance

Unit-V

Virtual Functions, Introduction, Need for Virtual Functions, Pointer to Derived Class Objects, Definition of Virtual Functions, Array of Pointers to Base Class Objects, Pure Virtual Functions, Abstract Classes, Virtual Destructors, How is Dynamic Binding Achieved?, Rules for Virtual Functions, Streams Computation with Console, What are Streams? Predefined Console Streams, Hierarchy of Console Stream Classes, Unformatted I/O Operations, Formatted Console I/O Operations, Manipulators, Custom/User-Defined Manipulators, Stream Operator with User-defined Classes, Streams Computation with Files, Introduction, Hierarchy of File Stream Classes, Opening and Closing of Files, Testing for Errors, File Modes, File Pointers and their Manipulations, Sequential Access to a File, ASCII and Binary Files, Saving and Retrieving of Objects, File Input/Output with fstream class, Random Access to a File, In-Memory Buffers and Data Formatting, Error Handling During File Manipulations, Filter Utilities.

Suggested Reference Book :

1. A Complete Guide to Programming in C++, Ulla Kirch-Prinz

2. Beginning C++ Through Game Programming, Michael Dawson

3. C++ Primer (5th Edition) , Josée Lajoie and Stanley B. Lippman

4. The Design and Evolution of C++, Bjarne Stroustrup

Paper – VII Introduction to Emerging Technologies

Max Marks : 100

Time : 3 Hours

Unit - I

Cloud Computing: Introduction of Cloud Computing: Cloud computing, Enabling Technology. Vision. Characteristics and components of Cloud Computing. Advantage and Challenges of Cloud Computing and Approaches of Migration into Cloud. Types of Clouds, Services models, Cloud Reference Model.

Unit-II

Artificial Intelligence Introduction Concept of AI, history, current status, scope, agents, Type of AI, uses of AI in daily life, future of AI, environments, introduction of Machine learning and Deep learning.

Unit III

Introduction to IoT Architectural Overview, Design principles and needed capabilities, IoT Applications, Sensing, Smart City, Elements of IoT Hardware Components- Computing (Arduino, Raspberry Pi), Communication, Sensing, Actuation, I/O interfaces. Industrial automation, Transportation, Agriculture, Healthcare, Home Automation

Unit IV

Introduction: Overview of Block chain, Public Ledgers, Bitcoin, Smart Contracts, Block in a Blockchain, Transactions, Distributed Consensus, Public vs Private Block chain, Understanding Crypto

currency to Block chain, Permissioned Model of Block chain, Overview of Security aspects of Block chain

Basic Crypto Primitives: Cryptographic Hash Function, Properties of a hash function, crypto currency and Markel tree, Digital Signature, Public Key Cryptography, A basic crypto currency Bit coin and Block chain:

Unit V

Introduction to Data Science concept of Data Science, Traits of Big data, Web Scraping, Analysis v/s Reporting, Statistics: Describing a Single Set of Data, Correlation, Simpson's Paradox, Correlation and Causation, Introduction to Programming Tools for Data Science Toolkits using Python: Matplotlib, NumPy, Scikit-learn, NLTK

Suggested Reference Book

1. Cloud Computing, Principle and Paradigms, Edited By Raj Kumar Buyya, Jemes Broberg, A Goscinski, Pub.- Wiley-2016.

2. Kumar Saurabh, "Cloud Computing" , Wiley Pub 2016.

3. Dr. Dheeraj Mehrotra Basics Of Artificial Intelligence And Machine Learning

4. BLOCKCHAIN, Real-Word Applicatin and Understanding, Wayne Walker

4. R for Data Science, Shriff/OReilly

Paper VIII: Internet Technologies and Web Design

Max Marks : 100 Time : 3 Hours

Unit - I

Introduction to Internet: History – The way internet works- Connecting to Internet – Uses of Internet – Internet Service Providers. Internet Access Tools: Information Retrieval Tools: FTP, Gopher – Communication tools: Telnet, Usenet – Multimedia Information tools: Home Page – Information Search tools: Archie – Veronica – WAIS. World Wide Web (WWW): What is WWW – Web page– Web site – Web browsers – Uniform Resource Locator (URL) – Search Engines – DNS – Electronic mail: Introduction – Advantages of E-mail – Address – E-mail components – E-mail functions.

Unit - II

Introduction to Web Design: Creating and Maintaining Web Site; Planning, Navigation and Themes, Site types and architecture element of a web page publishing and publicizing site/structuring web site. HTML: Basic concepts – Structure of HTML document : HTML elements. Links and Addressing: Linking Basics, URL - HTML and Images: HTML Image Basics.

Unit - III

Frames: Overview of Frames, Frame Targeting, Floating Frames. Form – Advantages of Form, Element of form, Implement of Form Element in a Web page (Creation of form)

Unit - IV

Cascading Style sheets: Understanding Style sheet, CSS Syntax and Applying style Sheet to HTML document, Developing Style Sheets: Inline, Internal and External. <DIV> tag. Using class and ID, Styling Background, Styling border, Styling Text, Styling Fonts, Styling Links, Styling Lists, Styling Tables, Margin

Unit - IV

Java Script : Introduction of scripting Language, Memory concepts, arithmetic decision making. Java Script control structure, Java script Functions, events, program

modules in Java Script. Function definition duration of identifiers, scope rules, Controlling Programming Flow, recursion Java Script Global Functions.

Unit V

Java Script & arrays: introduction, array declaring and allocating memory, passing array to functions, multiple subscripted arrays. The Java Script Object Model Java Script Language Object, Developing Interactive Forms, Cookies and Java Script Security Controlling Frames in Java Script, Client - Side Java Script Custom, Java Script Object.

Suggested Reference Book :

1. M. L. Young : Complete Reference b: Internet, Tata McGraw Hill
2. Thomas A. Powel Web Design; C.R
3. Thomas A. Powel HTML & XHTML
4. Fundamentals of Internet and WWW by Reymond Greenlaw and Ellen Hepp, Tata Mc Graw Hill.
5. The Complete Reference Web Design by Thomas A. Powell, Tata McGraw Hill edition.
6. The Complete Reference HTML by Thomas A. Powell, Tata McGraw Hill Second edition (Chapters 3, 4, 5, 8, 10, 11, 13, 14)

modules in Java Script. Function definition duration of identifiers, scope rules, Controlling Programming Flow, recursion Java Script Global Functions.

Unit V

Java Script & arrays: introduction, array declaring and allocating memory, passing array to functions, multiple subscripted arrays. The Java Script Object Model Java Script Language Object, Developing Interactive Forms, Cookies and Java Script Security Controlling Frames in Java Script, Client - Side Java Script Custom, Java Script Object.

Suggested Reference Book :

1. M. L. Young : Complete Reference b: Internet, Tata McGraw Hill
2. Thomas A. Powel Web Design; C.R
3. Thomas A. Powel HTML & XHTML
4. Fundamentals of Internet and WWW by Reymond Greenlaw and Ellen Hepp, Tata Mc Graw Hill.
5. The Complete Reference Web Design by Thomas A. Powell, Tata McGraw Hill edition.
6. The Complete Reference HTML by Thomas A. Powell, Tata McGraw Hill Second edition (Chapters 3, 4, 5, 8, 10, 11, 13, 14)

Paper - IX Data Communication and Computer Networks

Max Marks : 100

Time : 3 Hours

Unit --I

Data Communications & Network Models: Data Communications: Components. Data Representation and Data flow, Networks: Distributed Processing, Network Criteria. Network Models, Categories of networks and Internetwork; Internet and Protocols and Standards. Network Models: Layered tasks, the OSI model, Layers in the OSI Model, TCP/IP protocol Suit, Addressing.

Unit --II

Data and Signals & Digital Transmission: Data and Signals: Analog and Digital Data. Analog and Digital Signals, Periodic and Non periodic Signals. Transmission impairment. Data rate limits and Performance. Transmission modes. Transmission Media: Guided media (Twisted Pair Cable, Coaxial Cable & Fiber-Optic Cable) and Unguided media Radio wave, Infrared, Microwave Communication. Satellite. Geosynchronous Satellites Communication and optical fiber communication.

Unit --III

Multiplexing & Switching Digital Transmission: Digital to Digital Conversion:- Line coding(Unipolar, Polar & Bipolar), Block Coding, Analog to Digital Conversion: PCM & DM. Digital to analog conversion: ASK, FSK, PSK & QAM, Analog to Analog conversion: Amplitude Modulation, Frequency Modulation & Phase Modulation. Multiplexing: FDM, WDM, Synchronous TDM and Statistical TDM.

Unit --IV

Error Detection and Correction: Switching: Circuit switched networks, message switching & packet switching. Datagram networks, Virtual Circuit networks. Error Detection and Correction: Introduction, Block coding: Hamming Distance & Parity bit, linear block codes, cyclic codes: CRC, VRC & LRC, and Checksum. Data Link Control: Data Link control: Framing. Introduction of Flow und Error Control.

Elementary Data Link Protocols: Simplest Protocol, Stop & Wait Protocol and Simplex protocol for a Noisy channels.

Unit --V

Networks Layer Functions and Protocols: Routing, Routing algorithms. Network layer protocol of Internet- IP protocol, Internet control protocols Transport Layer Functions and Protocols: Transport services. Berkeley socket interface overview, Transport layer protocol of Internet- UDP and TCP. Overview of Application layer protocol: Overview of DNS protocol, Overview of WWW & HTTP protocol.

Suggested Reference Book :

1. Behrouz A Foruzan, Data Communication and Networking; 3rd Edition; Tata McGraw.
2. Behrouz A Foruzan, TCP/IP Protocol Suite; 2nd Edition; Tata McGraw Hill.
3. Stalling Willian; Data and Computer Communication; 8nd Edition Pearson.
4. Tannenbasum; Computer Network; 4th ediotion, PHI.

Paper - X Digital Marketing

Max Marks : 100

Time : 3 Hours

Unit-I

Digital Marketing Fundamentals Marketing v/s Sales, Marketing Mix and 4 Ps, What is Digital Marketing, CRM platform, CRM models, CRM platform, Marketing Automation. Inbound vs Outbound Marketing, Content Marketing, Understanding Traffic, Understanding Leads, Strategic Flow for Marketing Activities.

Unit-II

Website Planning and Structure Objective of Website and Flow, One Page Website. Google Analytics, Tracking Code, Website Auditing. Search Engine Optimization: Basic Concepts, how Search Engine works. Keywords. Keywords, titles, meta tags, On page optimization techniques, Off page Optimization techniques. SEO Audit & Future of SEO.

Unit-III

Email Marketing: Content Writing, Contents Writing Techniques and Tools. Email Machine The Strategy. Email Frequency, Triggers in Email using 4Ps, Sequence of Email Triggers. Email Software and Tools, Importing Email Lists, Planning Email Campaign. Email Templates and Designs, Sending HTML Email Campaigns, Web Forms Lead Importing, Integrating Landing Page Forms Campaign Reports and Insights.

Unit-IV

Google Adwords: Basics, Google Ad Types, Pricing Models, PPC Cost Formula, Ad Page Runk Billing and Payments, Adwords User Interface, Keyword Planning. Keywords Control, Creating Ad Campaigns, Creating Text Ads, Creating Ad Groups, Bidding Strategy for CPC.

Unit-V

Social Media Optimization (SMO): Introduction, Advanced Facebook Marketing, Word Press Blog Creation, Twitter Marketing, LinkedIn Marketing. Google Plus

Marketing. Instagram. Social Media Analytical Tools, Scheduling Posts, Social media Events. Reply and Message. Social media Ad Campaigns & Components, YouTube Marketing: Channel Links. Channel Keywords, Branding Watermark. Uploading Videos, Featured Contents on Channel

Suggested Reference Book :

1. Ian Dodson, "The Art of Digital Marketing ", Wiley, 2018
2. Seema Gupta, "Digital Marketing" Mc-Graw Hill, 1" Edition, 2017
3. References: Puneet Singh Bhatia, "Fundamentals of Digital Marketing". Pearson. I" Edition, 2017
4. Vandana Ahuja, "Digital Marketing", Oxford University Press
5. Philip Kotler, "Marketing 4.0.-Moving from Traditional to Digital". Wiley, 2017

Paper – XI Practical Examination

Max Marks : 200

Time : 2 Hours

Paper Pattern for Practical Examination:

No. of Question	Marks for each Question	Total Marks	From
04	25	100	Paper -

File Work **50 Marks**
Viva Voce **50 Marks**

Paper – XII Project Work

Max Marks : 200

Guideline for preparing a project report

Objective: Student able to develop a small real time application using any programming language which is part of their course curriculum or any new upcoming programming language.

Guidelines regarding Project

1. Student should work in group minimum number of students in one group can be 02 maximum number of students in one group can be 04.
2. Student will be working under supervision of one teacher.
3. Student will submitted a project in 2 copy.
4. The report should be spiral bound along with the soft copy of the project.
5. The report should be submitted with the following Guideline in the prescribe format:
    a. paper size A4
    b. Margin left 1.5 write top and bottom 1 inch
    c. Fonts Time Romance
    d. Chapter Heading 16 pt
    e. Sub Headings 14 pt
    f. Sub-Sub Headings 12 bold
    g. Running Metter 12 pt.
    h. All topics should be number accordingly.
    i. Paragraph gap 6 pt maximum
    j. Line Spacing 1.5

Top Page

<Title of Project Work>

Project report submitted in partial fulfillment of the reuirement for the award of the Diploma of Post Graduate Diploma in Computer Application

By

<Name of Candidates>

<Roll No.>

<Enrollment Number>

<Session : Session>

<University logo>

Name of the current Affiliated college

Jagadguru Ramanandacharya Rajasthan Sanskrit University, Jaipur

Second Page

Certificates

This is to be certified that the project report entitled ..... being submitted by Mr/Mrs. in partial fulfillment for the award of the degree of Post Graduate Diploma in Computer Application to the Jagadguru Ramanandacharya Rajasthan Sanskrit University, Jaipur is a record of bonafide work carried out the himself /herself under my guideline and supervision

The result embodied in this project report have not been submitted to any other university or institute for the award of any Degree or Diploma.

(HOD/Director)
Name
Designation

Guide

Third Page

The third page may include the Certificate given by the Original and company where candidate has done his/her project.

Fourth Page

The fourth page should contain the declaration by the student (See the sample Format)

Declaration

This is to certified that the work reported in the present project entitled <title of the project work> is a record of work done by me in the <Department Name> <Name of College/Organization>. The report are based on the project work done entirely by us and not copied from the other source.

Signature of candidate

<Name of student >

Class

Roll number

Session

Fifth Page

The Fifth page may include the Acknowledgement

Sixth and Seventh

These Page should contain a table of contents list of table list of figure must be provided.

Eighth Page

The Eighth page should contain an abstract of the project report. The candidate Mein emphasize here his/her contribution in this report.

Note: all the pages are to be number in Roman numerals of lowercase Ex. I, ii, iii, iv …. Except the top page.

The following is suggested format for arranging the project report matter into various chapter.

1. Introduction

This chapter must be describe introduction about your project

2. Literature survey/Review of the Literature
3. Define the Problem

   Define the module and their functionalities

   Hardware/Software requirements
4. System Design and Implementation

Actual implementation of the problem should be described in this chapter

The design part must include the following items

- DFD in case of database project
- UML design this UML diagram must include the following
- Class diagram
- Induction diagram
- Sequence and collaboration diagram
- Object diagram
- Use case diagram
- Control flow diagram
- Database design

In case of a database project the report must include the following items

- ER diagram

5. Result and Decisions
6. Conclusions and future enhancements/Recommendations
7. Reference biography
8. Appendices (if any)