M.C.A. I year Semester: I

Sr. No.	Course/Subject Name	Course	Examination Schema				Total Marks
			Max.	Max-	Total	Min.	
1	Advanced Java Programming	1T1	80	20	100	40	100
2	Data Communication and Network	1T2	80	20	100	40	100
3	Open source Web Programming using	1T3	80	20	100	40	100
4	Advanced DBMS and Administration	1T4	80	20	100	40	100
5	Software Engineering	1T5	80	20	100	40	100
6	Practical I based on Paper 1,2,3	1P1	100	--	100	40	100
7	Practical II based on Paper 4,5	1P2	100	--	100	40	100

M.C.A. I year Semester: II

Sr. No.	Course/Subject Name	Course	Examination Schema				Total Marks
			Max. Marks (Theory/Practical)	Max- Marks (Internal)	Total Marks	Min. Passing Marks	
1	C# and ASP .NET	2T1	80	20	100	40	100
2	Cloud Computing	2T2	80	20	100	40	100
3	Computer Graphics	2T3	80	20	100	40	100
4	Cyber Forensics	2T4	80	20	100	40	100
5	Android Programming	2T5	100	20	100	40	100
6	Practical 1 based on 2T1,2T2 and 2T3	2P1	100	--	100	40	100
7	Practical 2 based on 2T4 and 2T5	2P2	100	--	100	40	100
8	Project	--	100	--	100	40	100

First Year M.C.A. Semester I (CBCS)

Paper 1 - 1T1 Credits: 4

Advanced Java Programming

Unit 1 :

Java and Internet, Features of java: security, portability, multithreading, etc, Bytecode, Datatypes, variables and Arrays, Operators, Classes : declaring objects, methods, constructor, overloading constructor, garbage collection, finalize() method, static variable and method, final variable, command line argument. Inheritance: super keyword, final with inheritance. Packages and Interfaces, Wrapper classes, Exception handling : Overview, types, Uncaught exception, try -catch block, multiple catch, nested try, throw, throws, finally, bulit-in and user- defined exception.

Multithreading : Life Cycle, Thread class and Runnable Interface, isAlive(), join(),Priorites, Synchronization : sleep() , run(). Interthread communication : wait(), notify(), notifyAll(), deadlock. String Handling.

Unit 2:

Applet: Applet Class, Architecture, Life Cycle, Display methods, HTML APPLET Tag, Passing parameter to Applet

AWT : working with Windows, Controls, Layout Manager, Menus. Swings. Event handling.

Unit 3:

JDBC : Architecture, JDBC-ODBC bridge driver, SQL Package, ResultSet and its methods.

Networking : Socket, Reserve socket, Internet Addressing, InetAddress, TCP/IP client socket, TCP/IP server socket, URL, URL Connection, Datagram.

RMI : Introduction, Architecture, Remote Interface, java.rmi. server package, class naming, creating Rmi server and client ,transmitting files using rmi, client side callback, RMISECURITYMANAGER class, RMI Exception, Stub and Skeleton.

Unit 4:

Servlet : Life Cycle, Tomcat, javax. servlet package, reading servlet parameter, javax.servlet.http package, handling http request and response with HTTPGET and HTTPPOST, cookies,session tracking. JSP : Introduction, Types of JSP tags, Application using JSP and Servlet.

JavaBeans : Advantages of Beans, BDK, JAR files, Introspection, Developing Beans using BDK.

Books:

1. Complete Reference ,Herbert Schildt ,TMH
2. Programming with Java , C Muthu ,McGraw Hill
3. Black Book on java

First Year M.C.A. Semester I (CBCS)

Paper 1 - 1T2 Credits: 4

Data Communication and Network

Unit 1 :

Introduction: Network structure and architectures and services OSI reference model.

The Physical Layer: theoretical basis for data communication, transmission media. Analog Transmission, Digital Transmission, Transmission and Switching, ISDN.

The Data Link Layer: Design issues, Error detection and correction, Elementary data link protocols, sliding window protocol, protocols performance, protocols specification and verification. Examples of the Data link layer.

Network Layer: Design issues, routing algorithms, Congestion control algorithms, Internet working, Examples of the network layer.

Unit 2 :

The Transport Layer: Design issues, Connection Management.

The session layer: Design issues and remote procedure call.

The Presentation Layer: Design issues, data compression techniques, cryptography.

The Application Layer: Design issues, file transfer, access and management, virtual terminals.

Unit 3 :

Network Security Fundamentals: Introduction, security Vulnerabilities and Threats, Classification of Security Services. Cryptography: Encryption principles, Conventional Encryption DES, IDEA, Algorithms, CBC, Location of Encryption Devices key Distribution.

Unit 4 :

Message Digests and Checksums, Message Authentication, Message Digests, Hash Functions and SHA, CRCs. Public key Systems: RSA Diffie-Heliman, DSS, Key Management.

Intruders: Intrusion Techniques, Intrusion Detection, Authentication, Password- Based Authentication, Address- Based Authentication, Certificates, Authentication Services, Email Security, Firewalls, Design Principles, Packet Filtering, Access Control, Trusted Systems, Monitoring and Management.

Books :

1. Computer Networks , Andrew S Tanenbum ,PHI
2. Network Security and Essentials: Application and standers ,Willam Stalling, Pearson
3. Cryptography and network security , Willam Stalling , Pearson Education.
4. Data Communication and Networking, Behrouz A. Forouzan, TMH.

First Year M.C.A. Semester I (CBCS)

Core

Paper 3 - 1T3 **Credits: 4**

Open Source Web Programming using PHP

Unit 1 :

Introduction : A Brief History of PHP, Installing PHP, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators Flow-Control Statements Including Code, Embedding PHP in Web Pages, Installing and Configuring PHP on Windows and Linux Platforms

Unit 2:

Functions: Calling a Function, Defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions, Strings: Quoting String Constants, Printing Strings, Accessing Individual Characters, Cleaning Strings, Encoding and Escaping, Comparing Strings, Manipulating and, Searching Strings Regular Expressions, POSIX-Style Regular Expressions, Perl-Compatible Regular Expressions, Arrays: Indexed Versus Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, Extracting Multiple Values, Converting Between Arrays and variables, Traversing Arrays, Sorting, Acting on Entire Arrays, Using Arrays

Unit 3 :

Classes and Objects: Terminology, Creating an Object, Accessing Properties and Methods, Declaring a Class, Introspection, Serialization, Web Techniques: HTTP Basics, Variables, Server Variables, Server Information, Processing Forms, Setting Response Headers, Session, cookies, files, Maintaining State, SSL, Using PHP to Access a Database: Relational Databases and SQL, Mysql database Basics, Advanced Database Techniques

Unit 4 :

Graphics : Embedding an Image in a Page, The GD Extension, Basic Graphics concepts, Creating and Drawing Images, Images with Text, Dynamically Generated Buttons, Scaling Images, Color Handling, **PDF:**PDF Extensions, Documents and Pages, Text, Images and Graphics, Navigation, Other PDF Features, **XML:** Lightning Guide to XML, Generating XML, Parsing XML, Transforming XML with SLT, Web Services, **Security:** Global Variables and Form Data, Filenames, File Uploads, File Permissions, Concealing PHP Libraries, PHP Code, Shell Commands, Security Redux, Application Techniques, Code Libraries, Tinplating Systems, Handling Output, Error Handling, Performance Tuning.

Books :

1. PHP5.1for beginners , Evan Bayross and Sharman Shah, SPD Publications
2. Programming PHP , Rasmus Lerdorf and Kevin Tatroe, Orilly Publications

First Year M.C.A. Semester I (CBCS)

Core

Paper 4 - 1T4 **Credits: 4**

Advanced DBMS and Administration

Unit 1 :

Relational Database design: Functional dependencies, and Normalization Normal forms based on primary keys (1 NF, 2 NF, 3 NF, BCNF, 4 NF, 5 NF) Loss less joins and dependency preserving decomposition Query Processing: Query Processing Stages, Query Interpretation, Equivalence of Expressions, Query Resource Utilization, Query Execution Plan, Estimation of Query Processing Cost, Multiple Index Access, Methods for Joining Tables (Nested Loop, Multiple Join) Structure of a Query Optimizer

Unit 2 :

Transaction Processing & Concurrency Control: Concept and definition of transaction, ACID properties, serializibility, Prioritization, states of transaction, Types of failure, desirable properties of transaction schedules and recoverability, serial usability of schedules, levels of transaction consistency, deadlocks, long duration transactions, transaction performance, transaction processing as implemented in contemporary database, management system. Concurrency Control, locking techniques, techniques based on time-stamp ordering, multiple granularity. Crash Recovery**:** failure classification, recovery concepts, database backup, recovery concepts based on deferred update and on immediate update. Shadow paging, check points, crash recovery techniques. Client/Server database : Evolution of client concept, Client/Server environment, characterization of Client/Server computing. Functions of clients server , application partitioning, the two-layer and three-layer architectures, communication between clients and servers.

Unit 3 :

Oracle Database Architecture and Administration: Oracle database architecture, Design, Creation, Management of Oracle Databases and related database schemes, Data Dictionary views and standard package Maintaining the control, Redo Log files, Managing Table spaces and Data Files, Storage structure and relationships, Managing rollback segment, Indexes, Managing data Integrity, Managing password security and resources, Managing users, Privileges, roles. Oracle Backup and Recovery Strategies: Backup and recovery considerations, Oracle recovery structure and processes, Oracle backup and recovery configuration, Physical backup, Complete recovery of an Oracle database, Oracle Export / Import utilities, Oracle standby database.

Unit 4 :

Oracle Tuning and Trouble shooting: Oracle performance tuning methodology, 'Oracle alert and trace files, Tuning the shared pool, Buffer Cache, Redo Log buffer, Database configuration and I/O issues, Using Oracle Blocks efficiently, Optimizing sort operations, Rollback segment tuning, Monitoring and detecting lock contention, SQL issues and tuning considerations for different application. Integrity, Security: Need for Database Integrity, Integrity Constraints, Introduction to Database, Security issues.

Books :

1. Fundamental of Database Systems , R. Elmasri S. Navathe Benjamin Cummings
2. Database system concept , Korth
3.Oracle 9i Performance Tuning, Joseph C. Johnson
4. DBA Handbook oracle press , Loney

First Year M.C.A. Semester I (CBCS)

Core

Paper 5 - 1T5 **Credits: 4**

Software Engineering

Unit 1 :

Introduction to Software Engineering : The evolving role of software, Changing Nature of Software, Software myths.

A Generic view of process : Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

Process models : The waterfall model, Incremental process models, Evolutionary process models, The Unified process. Requirement Engineering **:** Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

Unit 2 :

Requirements engineering process : Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System models : Context Models, Behavioral models, Data models, Object models, structured methods. Modeling with UML .

Design Engineering : Design process and Design quality, Design concepts, the design model.

Creating an architectural design : Software architecture, Data design, Architectural styles and patterns, Architectural Design.

Unit 3 :

Object-Oriented Design : Objects and object classes, An Object-Oriented design process, Design evolution. Performing User interface design : Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

Testing Strategies : A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging. Product metrics **:** Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Unit 4 :

Metrics for Process and Projects **:** Software Measurement, Metrics for software quality.

Risk management **:** Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

Quality Management : Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

Books :

1.Software Engineering, A practitioner's Approach, Roger S. Pressman, McGrawHill International Edition.

2. Software Engineering, Sommerville, Pearson education.

3. Software Engineering principles and practice, Waman S Jawadekar, McGraw-Hill.

First Year M.C.A. Semester II (CBCS)

Core

Paper 1 - 2T1 **Credits: 4**

C# and ASP .NET

Unit 1:

Introduction to .NET, the origins of .NET, .NET framework overviews (a common substrate for all development, key design goals, Mega Data, Multiple language integration and support, Name spaces), .NET framework Base classes, User and program interfaces(user Interface, Windows Forms, Web Forms, Console application), Program interface, Web Services

Introduction to Common Language Runtime (CLR) Requirement of .NET application (Assembly, Module, Type), common type systems (Custom types, Boxing & Unboxing value types), Metadata (Attributes, Custom Attributes), Managed Data (Managed Heap, Garbage collector), Garbage collector, optimization, pinning objects.

Unit 2:

Introduction to C Sharp, Value type, Default Constructor, Struct type, Enumeration type, Reference type, Class Type, Object Type, String Type, Interface type, Array type, Delegate type, Predefined types, Concept of Boxing & Unboxing, Array types, Variables & Parameters, Operands, Statements. Expression, operators, C Sharp Objects, Classes and Methods, Inheritance, Garbage collector, Class library and Name Space, Method overloading, statements and control. Struct types, Struct declaration, Struct modifier, Struct Interface, Enums, Enumerator Base type, Enum modifiers, Enum Members, Enum values and operations, String operations, converting objects to string, String builder, File and folder operations, reading and writing text files, reading and writing binary files,

Unit 3:

Introduction to ASP .NET - About ASP .NET, Basic difference between C# and VB .NET, Understanding Namespaces and Assemblies - Importing Namespaces, Assemblies.

Web Server and user - Installing US. US Manager - Creating a virtual Director, Virtual Directories and Applications, Folder Settings, Adding virtual directory to your Neighborhood. Installing ASP .NET. ASP.NET Applications - ASP .NET file Types, The bin directory, Code-Behind, The Global.asax Code-Behind, Understanding ASP. Net Classes, ASP .NET Configuration, Web Form Fundamentals - A Simple Applets, Improving the Currency Converter, HTML Control classes, Page Class, Assessing HTML Server Controls. Web Controls - Basic Web Control classes, Auto Post Back and Web Control Events, A Web page Applets. Validation and Rich Controls.

UNIT 4:

State Management Tracing, Logging and Error Handling -Common errors, .NET Exception Object, Handling Exceptions, Throwing your own Exceptions, Logging Exceptions, Error pages, Page tracing. Advanced ASP. NET -Component-Based Programming - Components Jargon, Creating Simple Component, Properties and State, Database Components, Using COM

Components. Custom Controls-User Controls, Deriving Custom controls. Cashing and Performance tuning - Designing fro scalability, Profiling, Caching, output Caching, Data caching. Implementing Security-Determining Security Requirements, The ASP .NET Security Model, Forms Authentication, Windows Authentication, Impersonation.

Books:

1. C#(CSharp) Programming, V. K. Jain, Dreamtech Press, New Delhi.
2. Programming in C# , Balguruswamy, Tata McGraw Hill.
3. Introduction to DOT NET (.NET), James Conardet. Al., Shroff Publisher
4. Introducing Microsoft Dot Net , David Platt, PHI Publication.
5. C # (C Sharp) Complete Reference , Schildt, Tata McGraw Hill
6.The Complete Reference-ASP .NET , Matthew MacDonald,Tata McGraw- Hill.
7. ASP .NET 4.5(Covers C# and VB codes), Black Book, dreamtech Publication

First Year M.C.A. Semester II (CBCS)

Core

Paper 2 - 2T2 **Credits: 4**

Cloud Computing

Unit 1 :

Origins and Influences, Basic Concepts and Terminology, Goals and Benefits, Risks and Challenges, Roles and Boundaries, Cloud Characteristics, Cloud Delivery Models, Cloud Deployment Models, Federated Cloud/Intercloud, Types of Clouds. Cloud-Enabling Technology: Broadband Networks and Internet Architecture, Data Center Technology, Virtualization Technology, Web Technology, Multitenant Technology, Service Technology.

Implementation Levels of Virtualization, Virtualization Structures/Tools and Mechanisms, Types of Hypervisors, Virtualization of CPU, Memory, and I/O Devices, Virtual Clusters and Resource Management, Virtualization for Data-Center Automation.

Unit 2 :

Common Standards: The Open Cloud Consortium, Open Virtualization Format, Standards for Application Developers: Browsers (Ajax), Data (XML, JSON), Solution Stacks (LAMP and LAPP),Syndication (Atom, Atom Publishing Protocol, and RSS), Standards for Security

Features of Cloud and Grid Platforms, Programming Support of Google App Engine, Programming on Amazon AWS and Microsoft Azure, Emerging Cloud Software Environments, Understanding Core OpenStack Ecosystem. Applications: Moving application to cloud, Microsoft Cloud Services, Google Cloud Applications, Amazon Cloud Services, Cloud Applications (Social Networking, E-mail, Office Services, Google Apps, Customer Relationship Management).

Unit 3 :

Basic Terms and Concepts, Threat Agents, Cloud Security Threats and Attacks, Additional Considerations. Cloud Security Mechanisms: Encryption, Hashing, Digital Signature, Public Key Infrastructure (PKI), Identity and Access Management (IAM), Single Sign-On (SSO), Hardened Virtual Server Images.

Cloud Issues: Stability, Partner Quality, Longevity, Business Continuity, Service-Level Agreements, Agreeing on the Service of Clouds, Solving Problems, Quality of Service, Regulatory Issues and Accountability.Cloud Trends in Supporting Ubiquitous Computing, Performance of Distributed Systems and the Cloud.

Unit 4 :

Enabling Technologies for the Internet of Things (RFID, Sensor Networks and ZigBee Technology, GPS), Innovative Applications of the Internet of Things (Smart Buildings and Smart Power Grid, Retailing and Supply-Chain Management, Cyber-Physical System), Online Social and Professional Networking.

How the Cloud Will Change Operating Systems, Location-Aware Applications, Intelligent Fabrics, Paints, and More, The Future of Cloud TV, Future of Cloud-Based Smart Devices, Faster Time to Market for Software Applications, Home-Based Cloud Computing, Mobile Cloud, Autonomic Cloud Engine, Multimedia Cloud, Energy Aware Cloud Computing, Jungle Computing.Docker at a Glance: Process Simplification, Broad Support and Adoption, Architecture, Getting the Most from Docker, The Docker Workflow.

Books:

1. Jack J. Dongarra, Kai Hwang, Geoffrey C. Fox, Distributed and Cloud Computing: From Parallel Processing to the Internet of Things, Elsevier, ISBN :9789381269237, 9381269238, 1st Edition.
2. Thomas Erl, Zaigham Mahmood and Ricardo Puttini, Cloud Computing: Concepts, Technology & Architecture, Pearson, ISBN :978 9332535923, 9332535922, 1 st Edition.
3. Srinivasan, J. Suresh, Cloud Computing: A practical approach for learning and implementation, Pearson, ISBN :9788131776513.
4. Brian J.S. Chee and Curtis Franklin, Jr., Cloud Computing: Technologies and Strategies of the Ubiquitous Data Center, CRC Press, ISBN :9781439806128.
5. Kris Jamsa, Cloud Computing: Saas, Paas, Iaas, Virtualization, Business Models, Mobile, Security, and More, Jones and Bartlett, ISBN :9789380853772.
6. John W. Ritting house, James F. Ransome, Cloud Computing Implementation, Management, and Security, CRC Press, ISBN : 978 1439806807, 1439806802.

First Year M.C.A. Semester II (CBCS)

Core

Paper 3- 2T3 **Credits: 4**

Computer Graphics

Unit 1 :

Introduction of computer Graphics and its applications, Overview of Graphics systems, Video display devices, Raster scan display, Raster scan systems, video controller, Raster scan display processor, Random scan display, random scan systems, color CRT monitor, Flat panel display, Interactive input devices, Logical classification of input devices, Keyboard, mouse, Trackball and spaceball, Joysticks, Image scanner, Light pens, Graphics software, Coordinates representations, Graphics functions.

Unit 2 :

Line drawing algorithms, DDA, Bresenham's, Circle generating, Mid-point circle algorithm, Ellipse generating, Polygon , Scan-line polygon fill, Boundary fill.

Unit 3 :

Basic transformation's, Translation, Rotation, Scaling, Matrix representation's & homogeneous co-ordinates, Composite transformation's, Reflection, Two dimensional viewing, Two dimensional clipping, Line, Polygon, Curve, Text. 3D-transformation, Projection, Viewing, Clipping.

Spline representation, Cubic spline, Bezier curve, Bezier surfaces, Beta spline, B-spline surfaces, B-spline curve, Hidden surfaces, Hidden lines, Z-buffer.

Unit 4 :

Fractal's geometry Fractal generation procedure, Classification of Fractal, Fractal dimension, Fractal construction methods. Color models, XYZ, RGB, YIQ, CMY & HSV, Shading algorithms, Shading model, Illumination model, Gouraud shading, Phong shading**.**

Books :

1. Computer Graphics ,M. Pauline Baker, Donald Hearn, PHI.
2. Mathematical Element for Computer Graphics , David F. Roger, J. Alan Adams, Tata McGHill.
3. Computer Graphics , Apurva Desai , PHI

First Year M.C.A. Semester II (CBCS)

Core Elective 1 (CE1-3)

Paper 4 - 2T4 **Credits: 4**

Cyber Forensics

Unit 1 :

Systems Vulnerability Scanning Overview of vulnerability scanning, Open Port / Service Identification, Banner / Version Check, Traffic Probe, Vulnerability Probe, Vulnerability Examples, OpenVAS, Metasploit. Networks Vulnerability Scanning - Netcat, Socat, understanding Port and Services tools - Datapipe, Fpipe, WinRelay, Network Reconnaissance – Nmap, THC-Amap and System tools. Network Sniffers and Injection tools – Tcpdump and Windump, Wireshark, Ettercap, Hping Kismet

Unit 2 :

Network Defense tools Firewalls and Packet Filters: Firewall Basics, Packet Filter Vs Firewall, How a Firewall Protects a Network, Packet Characteristic to Filter, Stateless Vs Stateful Firewalls, Network Address Translation (NAT) and Port Forwarding, the basic of Virtual Private Networks, Linux Firewall, Windows Firewall, Snort: Introduction Detection System

Web Application Tools Scanning for web vulnerabilities tools: Nikto, W3af, HTTP utilities - Curl, OpenSSL and Stunnel, Application Inspection tools – Zed Attack Proxy, Sqlmap. DVWA, Webgoat, Password Cracking and Brute-Force Tools – John the Ripper, , HTC-Hydra

Unit 3 :

Introduction to Cyber Crime and law Cyber Crimes, Types of Cybercrime, Hacking, Attack vectors, Cyberspace and Criminal Behavior, Clarification of Terms, Traditional Problems Associated with Computer Crime, Introduction to Incident Response, Digital Forensics, Computer Language, Network Language, Realms of the Cyber world, A Brief History of the Internet, Recognizing and Defining Computer Crime, Contemporary Crimes, Computers as Targets, Contaminants and Destruction of Data, Indian IT ACT 2000.

Unit 4 :

Introduction to Cyber Crime Investigation Firewalls and Packet Filters, password Cracking, Key loggers and Spyware, Virus and Warms, Trojan and backdoors, Steganography, DOS and DDOS attack, SQL injection, Buffer Overflow, Attack on wireless Networks

Books:

1. Anti-Hacker Tool Kit (Indian Edition) , Mike Shema, Mc Graw Hill.
2. Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives , Nina Godbole and SunitBelpure, Wiley
3. The Unofficial guide to Ethical Hacking, Ankit Fadia, Laxmi Publi.

First Year M.C.A. Semester II (CBCS)

Core

Paper 5 - 2T5 **Credits: 4**

Android Programming

Unit 1:

Getting an Overview of Android Introducing Android , Listing the Version History of Android Platform , Discussing Android APIs , Describing the Android Architecture, Application Framework Exploring the Features of Android , Discussing about Android Applications , The Application Components The Manifest File , Downloading and Installing Android , Downloading and Installing the Android SDK Setting up Android Virtual Device , Setting up Android Physical Device , Exploring the Development Environment , The Java Perspective Using Eclipse , The DDMS Perspective , The Command-Line Tools , Developing and Executing the First Android Application, Using Eclipse IDE to Create an Application , Running Your Application , Exploring the Application, Using Command-Line Tools

Unit 2:

Using Activities, Fragments, and Intents in Android

Working with Activities Creating an Activity , Starting an Activity , Managing the Lifecycle of an Activity, Applying Themes and Styles to an Activity , Displaying a Dialog in the Activity , Hiding the Title of the **Using Intents** Exploring Intent Objects, Exploring Intent Resolution, Exploring Intent Filters , Resolving Intent Filter Collision , Linking the Activities Using Intent, Obtaining Results from Intent , Passing Data Using an Intent Object , **Fragments** Fragment Implementation , Finding Fragments ,Adding, Removing, and Replacing Fragments , Finding Activity Using Fragment , Using the Intent Object to Invoke Built-in Application .

Unit 3:

Working with the User Interface Using Views and View Groups

Working with View Groups, The LinearLayout Layout , The RelativeLayout Layout ., The Scroll View Layout , The TableLayout Layout ,The FrameLayoutLayout,TheTabLayout Using the Action Bar , Working with Views , Using the Text View , Using the EditText View , Using the Button View , Using the Radio Button View , Using the CheckBox View ,Using the Image Button View ,Using the Toggle Button View , Using the RatingBar View, Binding Data with the AdapterView Class , Using the ListView Class Using the Spinner, Using the Gallery View ,Designing the AutoTextCompleteView ,Implementing Screen Orientation , Anchoring the Views of the Current Activity , Customizing the Size and Position of the Views , Designing the Views Programmatically , **Handling UI Events** Handling User Interaction with Activities, Handling User Interaction with the Views , **Specialized Fragments** ListFragment, DialogFragment , PreferenceFragment , **Creating Menus** The Options Menu , The Context Menu , The SubMenus, **Handling Pictures and Menus with Views, Working with Image Views** , Displaying Images in the Gallery View , Displaying Images in the Grid View , Using the ImageSwitcher View , Designing Context Menu for Image View , Using the AnalogClock and DigitalClock Views , Embedding Web Browser in an Activity , **Notifying the User** ,Creating the Toast Notification , Creating the Status Bar Notification , Creating the Dialog Notification

Unit 4:

Storing the Data Persistently, **Introducing the Data Storage Options** Using Preferences, **Using the Internal Storage**, Exploring the Methods Used for Internal Storage, Developing

an Application to Save User Data Persistently in File, **Using the External Storage**, Exploring the Methods Used for External Storage, Developing Application to Save File in SD Card.
Using the SQLite Database, Creating the Database Helper Class, Creating the Layout and Main Activity Class, Creating the Layout and Activity for the Insert Operation, Creating the Layout and Activity to Search a Record, Creating the Activity Class to Fetch All Records, Creating the Layout and Activity for the Update Operation, Creating the Layout and Activity for the Delete Operation., Executing the Database Operations, **Working with Content Providers**, Exploring the android. provider Package, Creating User-Defined Content Provider, Consuming User-Defined Content Provider
Emailing and Networking in Android , Building an Application to Send Email **Networking in Android**, Getting an Overview of Networking Fundamentals , **Checking Network Availability**, Accessing Web Services Using HTTP Post, Accessing Web Services Using the GET Method , Working with Binary Data and Text Files, Consuming JSON Services , Sockets Programming

Book:

1. Android Application Development (with Kitkat Support) Black Book, Pradeep Kothari, DreamTech Press
2. Android Wireless Application Development Volume I: Android Essentials, Third edition, Lauren Darcey, Shane Conder, Pearson.
3. Android, Prasanna Kumar Dixit, Vikas Professional Master-Class Series.

Pattern of Question Paper

1. There will be four units in each paper.

2. Maximum marks of each theory paper will be 80.

3. Question paper will consist of five questions, each of 16 marks.

4. Four questions will be on four units with internal choice (One question on each unit)

5. Fifth question will be compulsory with questions from each of the four units having equal weightage and there will be no internal choice