# BCA III YEAR

## BCA-31-OBJECT ORIENTED PROGRAMMING CONCEPTS USING JAVA

**Max Marks: 40** **Min Marks:13**

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| **UNIT I** |
| Primitive data types – integer, Short, Long, byte, float, double, Unicode, Character set, Boolean, their ranges, defaults initial values, wrapping of integer arithmetic, casting comments, identifiers and reserved words, local variables, operators and operator precedence, examples and exercises. |
| **UNIT II** |
| Statements simple and compound, Uses of control do, for, while, switch, break, case continue, label, class type data: String, Arrays, example and exercises. |
| **UNIT III** |
| Definitions and naming conventions for the members of the JAVA classes, instance fields and methods, Initialization by constructor, Initialization by Default constructor, Multiple Definition of constructors, creation of objects, access methods. Examples and exercises. |
| **UNIT IV** |
| Inheritance, Super class, Sub class, Method overloading, interface, thread, Multithreading example, synchronized, Exception (try-catch-final blocks examples.) examples and exercises. |
| **UNIT V** |
| Java Virtual machine concept, Java Platform overview, programming Examples to clarify use of object, threads, exceptions and packages for I/O, file and string handling. examples and exercises. |
| **Practicals** |
| **Note:** As per the syllabus and under guidance of respective faculty every student has to perform minimum 50 lab. exercise covering all units with equal weightage. |

**TEXT BOOK**

1. Complete Reference (Java 2) – Herbert Schildt - Tata McGraw Hill
2. Programming with java E. Balagurusamy Tata McGraw Hill, New Dehli, 2nd edition 2002.

**REFERENCE BOOKS :**

1. Joseph O'Neil, Teach yourself java, Tata McGraw Hill, New Dehli, 2001.
2. Java script : Don Gosselin, Thomson Learning ( vikas Publication)
3. Java in a nut shell – Flanagan – Orielly Publication

**BCA III YEAR**

## BCA-32-COMPUTER NETWORKS

Max Marks: 40 Min. Marks:13

| **Unit I** |
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| Introduction: Computer Network, Goals and Applications, Models – OSI and TCP/IP, Types of networks: LAN, MAN and WAN, Topologies, LAN components – File server, Workstations, Network Adapter Cards. Networking medium: twisted pair, coaxial cable, optical fiber, Digital data rates, Serial Data Formats, Encoded data Formats, Connection Oriented and Connectionless services, Switching Techniques – Circuit Switching, Packet Switching, Message Switching. |
| **Unit II** |
| Data Link Layer**:** Design Issues, Framing, Error detection: Parity Check, LRC, VRC, Check Sum and Cyclic Redundancy Check (CRC); Correction Technique: Hamming code. Flow Control: Elementary Data Link Protocols: An Unrestricted Simplex Protocol, Simplex Stop-and-Wait Protocol, Sliding Window Protocols: One-Bit Sliding Window Protocol, Go Back N and Selective Repeat. Data link layer in the Internet: SLIP and PPP. |
| **Unit III** |
| Limits of Communication, RS 449 Interface Standards, RS 422 and RS 423. Multiplexing methods : FDM, TDM, WDM, sampling theorem and quantization, Delta Modulation.MAC Sublayer**:** Multiple access protocols: Pure Aloha, Slotted Aloha, CSMA Protocols; Collision- Free Protocols; IEEE MAC Sublayer protocols: 802.3, 802.4, 802.5:Ethernet, Fast Ethernet, Token Bus, Token Ring, FDDI, Wireless LANs. |
| **Unit IV** |
| Network Layer: Design issues, Routing Algorithms: Optimality Principle, Shortest Path Routing, Flooding, Distance Vector Routing. Link State Routing, Hierarchical Routing, Broadcasting Routing, Multicast Routing. The Network Layer in the Internet: Internet Protocol, IP addresses and Internet Control protocols. |
| **Unit V** |
| Transport Layer: Elements of Transport Protocols, Addressing, Connection Establishment & Release, Flow Control & Buffering, Multiplexing. Introduction to UDP & TCP.<br>Application layer**:** DNS, WWW and HTTP, Cookies, Proxy Server. E-mail Protocols (SMTP, POP3, IMAP, MIME), FTP, TELNET. Network Security: Cryptography, Symmetric- key Algorithms: DES, AES, Public-key Algorithms: RSA, Digital Signatures. |

**BOOKS:**

**Text Books:**


1. Data & Network Communication by Michael A. Miller
2. Data Communications and Networking, B.A. Forouzan, Tata McGraw-Hill.


**Reference Books:**


1. Deitel&Deitel, Goldberg," Internet and World Wide Web-How to Program", Pearson Education Asia,2001
2. Computer Networks-A. S. Tanenbaum.

**BCA III YEAR**

**BCA-33-WEB PROGRAMMING**

**MAX. MARKS: 40** **MIN. PASS MARKS: 13**

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| **Unit-I** |
| **Web Technology:** Introduction to WWW, web browsers, web servers, HTTP, URL.<br>**HTML:** Introduction, Objective, HTML Command Tags: Text, List, Table, creation of links, inserting graphics, forms.<br>**Cascading style sheets:** Introduction to CSS, creating style sheets, Types of CSS. |
| **Unit-II** |
| A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages.<br>**Strings:** String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace. |
| **Unit-III** |
| **Arrays:** Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays, Sorting.<br>**Functions:** Calling a Function, Defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions.<br>**Object Oriented Programming Concepts:** Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism.(only basic definitions of these topics) |
| **Unit-IV** |
| **Form Handling in PHP:**<br>Setting Up Web Pages to Communicate with PHP, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, Image Maps.<br>**File Handling**: Working with files and directories, File Open and Read, File Create and Write, Reading and writing Character in file, reading entire file, Rename and Delete File, getting information of files, ownership and permissions. |
| **Unit-V** |
| **Database Access :**Using PHP to access a database. Introduction to MySql, connectivity with MySql.<br>XML: What is XML? XML document structure, PHP and XML, XML parser, the document object model, the simple XML extension, changing a value with simple XML. |
| **Practicals** |
| **Note**: As per the syllabus and under guidance of respective faculty every student has to perform minimum 50 lab. exercise covering all units with equal weightage. |

**BOOKS:**


1. Programming PHP by RasmusLerdorf and Kevin Tatroe, O'Reilly Publications
2. Beginning PHP5 by Wrox Publication
3. Mastering PHP : BPB Publication
4. PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
5. PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008.

**BCA III YEAR**

**BCA-34-MANAGEMENT INFORMATION SYSTEM**

**Max Marks: 40** **Min Marks:13**

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| **UNIT-I:** |
| **Management & Organizational Support Systems For Digital Firm:**<br>Definition of MIS; Systems approach to MIS: Report writing s/w, MIS and Human factor, Considerations, concept of organizational information sub-system, MIS & problem solving. Case Studies. |
| **UNIT-II:** |
| **Information Systems & Business Strategy:**<br>Information Management. Who are the users? Manager & Systems, Evolution of Computer based information system (CBIS), Model of CBIS. Information services organization : Trend to End-User computing, justifying the CBIS, Achieving the CBIS, Managing the CBIS, Benefits & Challenges of CBIS implementation. Strategic Information System, Business level & Firm level Strategy, Case Studies. |
| **UNIT-III:** |
| **Information Systems In the Enterprise:**<br>Systems from Management & Functional perspective & their relationship: Executive Information System, Decision Support System Sales & Marketing Information System, Manufacturing Information System, Human-Resource Information System. Finance & Account Information System. Case Studies. |
| **UNIT-IV:** |
| **Information Technology for Competitive Advantage :**<br>Firm in its environment, What are the information resources? Who manages the information resources? Strategic planning for information resources. End-User Computing as a strategic issue, Information resource management concept. Case Studies. |
| **UNIT-V:** |
| **E-Commerce & International Information System :**<br>Introduction to E-Commerce, Business Intelligence. E-Commerce strategy, Electronic Data Interchange, E-commerce methodology, E-commerce technology, Business application of the Internet. Electronic Business success strategies. Managing International Information Systems: IIS architecture, Global business drivers , challenges, strategy: divide, conquer, appease, cooptation, business organization, problems in Implementing global information systems, Computer crime, ethics & social issues. |

## Text Books:-


1. MIS A Concise Study, S.A. Kelkar, PHI.
2. MIS managing the digital firm, Kenneth C. Laudon& Jane P. Laudon (Pearson Education).
3. ElectronicCommerce: Greenstein, Merylin, Tata Mc.Graw Hill


## Reference Books :-


1. MIS, Suresh K. Basandra (Wheelers)
2. Introduction to computer Information System for Business, Mark G. Simkin, S. Chand & Co., 1996.
3. Analysis & Design of Information Systems, James A. Senn. MCGraw-Hill International.

**BCA-III YEAR**

**BCA-35- COMPUTER GRAPHICS (WITH MULTIMEDIA)**

**Max. Marks: 40** **Min. Marks: 13**

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| **UNIT – I** |
| A brief background about applications of Computer Graphics. Overview of graphic systems, video display devices, refresh cathode ray tubes, raster and random screen display, color CRT monitors, flat panel displays, LCD's. Design and architecture of raster scan and random scan display systems. A brief introduction to input devices and hardcopy devices. Output primitives, DDA and Bresenham's 2D line drawing algorithms, parallel line algorithms. |
| **UNIT – II** |
| Midpoint circle generating algorithm, Ellipse generating algorithm, Character generation, attributes of output primitive, line and curve attributes, character attributes, Basic Transformation, Composite Transformation |
| **UNIT – III** |
| Clipping operations, Cohen Sutherland line clipping, Liang Barsky line clipping, Nicholl-Lee-Nicholl line clipping, polygon clipping, Sutherland Hodgeman and Weiler-Atherton polygon clipping, text and curve clipping. |
| **UNIT IV** |
| **Photoshop-Introduction:**Working with image file- creating a new file, opening an existing file, importing andimage, grabbing scanner image, grabbing a digital camera image, adding file information, saving a file, saving to another format, switch between file, closing a file. **Adding contents with tools:** selecting a tool, setting a tools option in option bar, resetting defaults, choosing colors, working with painting and drawing tools. **Working withimage view:** using the zoom tool, changing the view zone. |
| **UNIT – V** |
| **Selecting image content:** Using the marquee tool, using the lasso tool, selecting pictures with magic wand,selecting by color range, adjusting and removing selection. **Changing a selection:** Deleting, Moving, Copying, Transforming, Modifying, Saving, and loading a selection, undoing a change. **Using positioning tools:** showing and hiding a grid, showing and hiding rulers, using snap and snap to locking guides. **Using layers, masks andpaths:** Working with layer, deleting a layer, setting layer properties, choosing a layer style, arranging layer order,grouping and ungrouping layers, flatter the image. |

**Text Book:**

Computer Graphics by Donald Hearn and M. Pauline Baker, Second Edition, PHI 1997.Photoshop 6 for Windows by Lisa A. Buckly, Pub.BPB.

**Reference Books:**

Learn yourself Photoshop by Vishnu Priya Singh and M. Singh Asia Pub.

**WEBSITE LINKS:**

http://cs.fit.edu/~wds/classes/graphics/History

http://people.csail.mit.edu/fredo/Depiction/1_Introduction/reviewGraphics.pdf

http://www.evl.uic.edu/datsoupi/502/14_mach.pdf

http://www.dgp.toronto.edu/~hertzman/418notes.pdf

**BCA III YEAR**

**BCA-36-CLOUD COMPUTING CONCEPTS**

**Max Marks: 40** **Min Marks:13**

| **UNIT-I:** |
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| **Introduction**: Historical development, Vision of Cloud Computing. Characteristics of Cloud Computing as per NIST, Cloud Computing reference model, Cloud computing environments, cloud services requirements, cloud and dynamic infrastructure, cloud Adoption and rudiments. Overview of cloud applications: EGC Analysis in the cloud Protein structure predication, Gene Expression Data Analysis, Satellite Image Processing, CRM /and ERP, Social Networking. |
| **UNIT-II:** |
| **Cloud Computing Architecture:** Cloud Reference Model, Types of Clouds, Cloud Interoperability & Standards, Scalability and fault tolerance, Cloud Solutions: Cloud Ecosystem, Cloud Business Process Management, Cloud Service Management, Cloud Offerings: Cloud Analytics, Testing Under Control, Virtual Desktop Infrastructure. |
| **UNIT-III:** |
| **Cloud Management & Virtualization Technology**: Resiliency, Provisioning, Asset management, Concepts of Map reduce, Cloud Governance, High Availability and Disaster Recovery. Virtualization: Fundamental Concepts of Compute, storage, networking, desktop and Application Virtualization, Virtualization benefits, server Virtualization, Block and file level storage virtualization Hypervisor Management software, Infrastructure Requirements, Virtual LAN(VLAN) and Virtual SAN(VSAN) and their Benefits. |
| **UNIT-IV:** |
| **Cloud Security**: Cloud Information Security Fundamentals, Cloud Security Services, Design Principles, Secure Cloud Software Requirements, Policy Implementation, Cloud Computing. Security Challenges, Virtualization security Management, Cloud Computing Security Architecture . |
| **UNIT-V:** |
| **Market Based Management of Clouds, Federated Clouds/Inter Cloud**: Characterization & Definition, Cloud Federation Stack, Third party Cloud Services. Case Study: Google App Engine, Microsoft Azure, Hadoop, Amazon, Aneka |

**List of Experiments:**

1. Installation and configuration of Hadoop/Euceliptus etc.
2. Service deployment & usage over cloud.
3. Management of cloud resources.
4. Using existing cloud characteristics & services models.
5. Cloud Security Management
6. Performance evaluation of services over cloud. Grading System 2013-14

**Recommended Text:**

1.Buyya, Selvi, “Mastering cloud Computing” TMH Pub
2.KumarSaurabh, “could Computing”, Wiley Pub
3.Krutz, Vines, “cloud Security”, Wiley Pub
4.velte, “Cloud Computing-A Practical Approach”, TMH Pub
5.Socinesky, “Cloud Computing”, Wiley Pub