

Annexure No.	31 B
SCAA Dated	29.02.2008

BHARATHIAR UNIVERSITY : COIMBATORE

M. Sc. (COMPUTER COMMUNICATION)

For Affiliated Colleges

(Effective from 2007-2008)

1. Eligibility for Admission to the Course

Candidates for admission to the first year course leading to the Degree of Master of Science (M. Sc.) in Computer Communication will be required to possess a pass with 50% of marks in B.Sc. (Computer Science / Information Technology / Computer Technology / Electronics) or B.C.A. In case of SC/ST candidates, a mere pass in the qualifying examination will be sufficient.

2. Duration of the Course

This Course of Study shall be based on Semester System. This Course shall consist of four Semesters covering a total of two Academic Years. For this purpose, each Academic Year shall be divided into two Semesters; the first and third Semesters; July to November and the second and the fourth Semesters; December to April. The Practical Examinations shall be conducted at the end of each Semester.

3. Course of Study

The Course of the Degree of Master of Science in Computer Communication shall be under the Semester System according to the Syllabus to be prescribed from time to time. This Course consists of Core Subjects and Elective Subjects. There shall be one Paper on applied Skill Oriented, subject preferably in each semester as part of the adjunct Diploma Programme DSQA (**Diploma in Software Quality Assurance**).

4. Scheme of Examinations

Distribution of Marks

Core	- 1800
Diploma	- 400
Total Marks	- 2200

**M. Sc. (COMPUTER COMMUNICATION) with
COMPULSORY DIPLOMA IN SOFTWARE QUALITY ASSURANCE**

SEM	SUBJECT AND PAPER		INSTRUCTIONAL HRS PER WEEK	UNIVERSITY EXAMINATIONS	
				Duration in Hrs	Max * Marks
I	Paper I	Data communications and	4	3	100
	Paper II	Networking	5	3	100
	Paper III	Internetworking Technologies	5	3	100
	Paper IV	Advanced Java programming	5	3	100
	Paper V	Distributed Operating System	4	3	100
	Practical I	Wireless Mobile Communications	4	3	100
	Diploma	Advanced Java Programming Lab Paper I	3	3	100
II	Paper VI	Advanced Networking	6	3	100
	Paper VII	UNIX Network Programming	5	3	100
	Paper VIII	Web Services	6	3	100
	Paper IX	Elective – I	5	3	100
	Practical II	UNIX Network Programming Lab	5	3	100
	Diploma	Paper II	3	3	100
III	Paper X	Design of Network Operating System	5	3	100
	Paper XI	FDDI and ATM based Networks	5	3	100
	Paper XII	C# and .NET Framework	5	3	100
	Paper XIII	Elective - II	5	3	100
	Practical III	C# programming lab	4	3	100
	Diploma	Paper III	3	3	100
	Diploma	Dip.Practical	3	3	100
IV	Project Work Project and Viva – Voce (150+50)				200
Total	M. Sc. (COMPUTER COMMUNICATION) DIPLOMA IN SOFTWARE QUALITY ASSURANCE				1800 400

- Includes 25% continuous internal assessment marks.

For project work and viva voce (External) Breakup:

Project Evaluation : 100

Viva Voce : 50

LIST OF ELECTIVES

ELECTIVE I (II Semester)

- ELECTIVE I.1 High Speed Networks
- ELECTIVE I.2 Neural Networks and Fuzzy Systems
- ELECTIVE I.3 Multimedia
- ELECTIVE I.4 Data Mining & Data Warehousing

ELECTIVE II (Third Semester)

- ELECTIVE II.1 Optical Fiber Communication
- ELECTIVE II.2 Distributed Computing
- ELECTIVE II.3 Real-Time Systems
- ELECTIVE II.4 Mastering LAN & Troubleshooting

5. Requirement to appear for the Examinations

- a) A candidate will be permitted to take the University Examination for any Semester, if
 - i) he/she secures not less than 75% of attendance out of the 90 instructional days during the Semester.
 - b) A candidate who has secured attendance less than 75% but 65% and above shall be permitted to take the Examination on the recommendation of the Head of the Institution to condone the lack of attendance as well as on the payment of the prescribed fees to the University.
 - c) A candidate who has secured attendance less than 65% but 55% and above in any Semester, has to compensate the shortage of attendance in the subsequent Semester besides, earning the required percentage of attendance in that Semester and take the Examination of both the Semester papers together at the end of the latter Semester.
 - d) A candidate who has secured less than 55% of attendance in any Semester will not be permitted to take the regular Examinations and to continue the study in the subsequent Semester. He/she has to re-do the Course by rejoining the Semester in which the attendance is less than 55%.
 - e) A candidate who has secured less than 65% of attendance in the final Semester has to compensate his / her attendance shortage in a manner to be decided by the Head of the Department concerned after rejoining the Course.

6. Restriction to take the Examinations

a) Any candidate having arrear paper(s) shall have the option to take the Examinations in any arrear paper(s) along with the subsequent regular Semester papers.

b) Candidates who fail in any of the papers shall pass the paper(s) concerned within 5 years from the date of admission to the said Course. If they fail to do so, they shall take the Examination in the revised Text / Syllabus, if any, prescribed for the immediate next batch of candidates. If there is no change in the Text / Syllabus they shall take the Examination in that paper with the Syllabus in vogue, until there is a change in the Text or Syllabus.

In the event of removal of that paper consequent to the change of Regulations and / or Curriculum after a 5 year period, the candidates shall have to take up on equivalent paper in the revised syllabus as suggested by the chairman and fulfill the requirements as per Regulations/Curriculum for the award of the Degree.

7. The Medium of Instruction and Examinations

The medium of instruction and Examinations shall be in English.

8. Submission of Record Notebooks for Practical Examinations & Project Viva-Voce.

Candidates taking the Practical Examinations should submit bonafide Record Note Books prescribed for the Examinations. Otherwise the candidates will not be permitted to take the Practical Examinations.

Candidates taking the Project Viva Examination should submit Project Report prescribed for the Examinations. Otherwise the candidates will not be permitted to take the Project Viva-voce Examination.

9. The Minimum (Pass) Marks

A candidate shall be declared to have passed in a paper if a student obtains not less than 50% of marks in that paper. A candidate shall be declared to have passed the whole Examination if the student passes in all the papers.

10. Improvement of Marks in the subjects already passed

Candidates desirous of improving the marks secured in their first attempt shall reappear once within the subsequent Semester. The improved marks shall be considered for classification but not for ranking. If there is no improvement there shall not be any change in the original marks already awarded.

11. Classification of successful candidates

A candidate who passes all the Examinations in the first attempt within a period of two years securing 75% and above marks in the aggregated shall be declared to have passed with First Class with Distinction.

Successful candidates passing the P.G. Degree Examinations, securing 60% marks and above shall be declared to have passed the exam in First class. All other successful candidates shall be declared to have passed the Examination in Second Class.

12. Ranking

A candidate who qualifies for the PG Degree Course passing all the Examinations in the first attempt, within the minimum period prescribed for the Course of Study from the date of admission to the Course and secures 1st or 2nd Class shall be eligible for ranking and such ranking will be confined to 10% of the total number of candidates qualified in that particular subject to a maximum of 10 ranks.

The improved marks will not be taken into consideration for ranking.

13. Conferment of the Degree

No candidate shall be eligible for conferment of the Degree unless he / she has undergone the prescribed Course of Study for a period of not less than four Semesters in an Institution approved of by and affiliated to the University or has been exempted there from in the manner prescribed and has passed the Examinations as have been prescribed.

14. Evening College

The above Regulations shall be applicable for candidates undergoing the respective Courses in the Evening Colleges also.

15. Revision of Regulations and Curriculum

The above Regulation and Scheme of Examinations will be in vogue without any change for a minimum period of three years from the date of approval of the Regulations. The University may revise /amend/ change the Regulations and Scheme of Examinations, if found necessary.

16. Transitory Provision

Candidates who have undergone the Course of Study prior to the Academic Year 2007-2008 will be permitted to take the Examinations under those Regulations for a period of four years i.e. up to and inclusive of the Examination of April 2012 thereafter they will be permitted to take the Examination only under the Regulations in force at that time.

PAPER I - DATA COMMUNICATIONS AND NETWORKING

Subject Description

This Course presents the Introduction to Data communication Principles and Networking

Goals

To enable the students to learn the Data Communication Concepts

Objective

On successful completion of the course the students should have:

- Understood the trends and principles of Data Communication & Network Protocols.

Contents

UNIT I

Introduction – Data Communication – Networks – Protocols & Standards

Basic Concepts : Line Configuration – Topology – Transmission Mode – Categories of Network

The OSI Model : The Model – Functions of the Layer – TCP/IP Protocol Suite.

Signals : Analog & Digital – Periodic & Aperiodic Signals - Analog Signals – Time & Frequency Domains – Composite Signals - Digital Signal

UNIT II

Encoding and Modulating .

Transmission of Digital Data : Interfaces and Modems : Digital Data Transmission – DTE-DCE Interface – Modems – 56K Modem- Cable Modem.

UNIT III

Transmission Media – Guided Media – Unguided Media - Transmission Impairment – Performance – Wavelength – Media Comparison. Multiplexing – Error Detection and Correction.

UNIT IV

Local Area Networks : Project – Ethernet – Other Ethernet Networks – Token Bus – Token Ring – FDDI – Comparison. Metropolitan Networks.

UNIT V

TCP/IP Protocol Suite : Overview – Network Layer - Addressing - Subnetting – Other Protocols –Transport Layer – Application Layer : Client Server Model – Bootstrap protocol and dynamic Host Configuration protocol - Domain Name System – TELNET –FTP - SMTP – SNMP – HTTP – WWW.

REFERENCE BOOK:

1. Behrouz A.Forouzan,"Data Communication and Networking",Second Edition,TataMcGraw Hill Pvt. Ltd
2. William Stallings,"Data and Computer Communications",Prentice Hall of India Pvt.Ltd,4th Edition.

PAPER II - INTERNETWORKING TECHNOLOGIES.

Subject Description

This Course presents the Internetworking technologies like TCP/IP.

Goals

To enable the students to learn the technologies for internetworking.

Objective

On successful completion of the course the students should have:

- Understood what is internetworking and how it can be done.

Contents

UNIT I

Internetworking -Troubleshooting methodology -Complexity of internet works-The Problem -solving model-protocol Attributes- OSI model-Global Protocol -Classification -OSI layer 3 & 2. Generic Trouble shouting tools-Physical media test Equipments- software test Equipment- Network Management systems -CISCO Network Management Software.

UNIT II

Understanding the output from diagnostic commands -Troubleshooting Commands-Applying CISCO's Diagnostics Tools.

UNIT III

Troubleshooting TCP/IP Connectivity: TCP/IP router diagnostic Tools-Problem Isolation in TCP/IP Networks - LAN Connectivity Problems- WAN Access Problems -IP Access-List ICMP message -Trouble shooting RIP-IGRP-EIGRP-OSPF.

UNIT IV

Troubleshooting Serial like and Frame Relay Connectivity: Trouble shooting Serial lines-Trouble shooting X.25- Frame Delay- Trouble shooting ISDN -Fundamentals-Common ISDN Problems -Commands.

UNIT V

Trouble Shooting-Novell connectivity- IPX Networking Fundamentals-Connecting to Novell - Router Diagnostic Tools - Common Novell Troubleshooting Issues- Debugging sealable Network Protocols.

Trouble Shooting Switched Ethernet & CISCO Support Functions.

REFERENCE BOOKS:

1. " Kevin Hales, Fobert Fadjen, Todd Iammler. " CC NP –“CISCO Internetwork Troubleshooting Study Guide “
2. "CISCO Certification Series" BPB Publications.
3. Perlman – Interconnectivity Bridges, Routers, Switches and Inter Connectivity Protocols., Second Edition, Pearson Education.
4. Syngress – "CCNP – CISCO internetwork trouble shooting 4.0", Tata McGraw Hill edition.
5. Rossi – "CISCO and IP addressing", Tata McGraw Hill editions.

PAPER III - ADVANCED JAVA PROGRAMMING

Subject Description

This Course presents the Advanced Java Programming concepts.

Goals

To enable the students to learn the advanced Java Technologies like JSP, RMI.

Objective

On successful completion of the course the students should have:

- Understood the trends and principles of advanced Programming in Java.

Contents

UNIT I

Servlets: Introduction to Servlets – HTTP Servlet Basics – Servlet life cycle, Servlet chaining, Retrieving Information, Servlet and HTML tracking API, Servlet with JDBC.

UNIT II

JSP : Servlets and Java Server Pages, Comments, Request Object, Expression statement – Declaration and Explicit objects, Scriptlets conditionals, loops, try and catch

UNIT III

JSP AND JAVA BEANS: Set Property, Get Property, Bean Instance and Serialization Bean Scopes.

JSP with Databases: Database Access from Java JDBC and Beans

UNIT IV

Overview of **RMI Architecture** Remote object structure, Interface Description, URL conventions for accessing the registry, binding an object to the registry.

UNIT V

Java Beans: Server-side Component Architecture, Multi-tier Architecture, The Remote Interface, The Home Interface, EJP-jar file, methods to session beans.

J2EE : Introduction to J2EE Architecture.

REFERENCE BOOKS:

1. O'reilly - Java Servlet Programming, First Edition, Short Publishers & Distributors Pvt. Ltd.,
2. Larne Pekowsky - Java server pages, Pearson Education, 2000.
3. Troy Bryan Downing - Java RMI, IDG Books World Wide, Inc 2000.
4. Ed Roman - Mastering Enterprise Java Beans, 1999.
5. Moss – Java Servlets : Developers Guide, TMH.
6. Abur – Core J2EE : East Practices & Design Strategies, Pearson Education
7. Bulka – Java Performance and scalability, Vol. 1, Server side programming techniques, Pearson Education.

PAPER IV - DISTRIBUTED OPERATING SYSTEM

Subject Description

This Course presents the fundamentals of Operating System

Goals

To enable the students to learn the functions of Operating System.

Objectives

On successful completion of the course the students should have:

- Understood the fundamentals of distributing system and how the memory can be shared.

Contents

UNIT I

FUNDAMENTALS: What is Distributed Computing System? – Evolution – System Models – Issues.

MESSAGE PASSING: Introduction – Features – Issues in IPC by Message Passing – Synchronization – Buffering Multi-datagram Messages – Encoding and Decoding of Message Data – Process Addressing – Failure Handling – Group Communication.

UNIT II

RPC: Introduction – Model – Transparency of RPC – Implementing RPC Mechanism – Stub Generation – RPC Messages – Server Management – Parameter-Passing and Call Semantics – Communication Protocols for RPC's – Client-Server Binding – Exception Handling – Security – Types of RPC's – Lightweight RPC

DISTRIBUTED SHARED MEMORY: Introduction – Architecture of DSM Systems – Design and Implementation Issues of DSM - Granularity – Structure of Shared Memory Space – Consistency Models – Thrashing.

UNIT III

SYNCHRONIZATION: Introduction – Clock Synchronization – Event Ordering – Mutual Exclusion – Deadlock – Election Algorithms.

RESOURCE MANAGEMENT: Introduction – Features – Task Assignment Approach – Load-Balancing Approach – Load-Sharing Approach

UNIT IV

PROCESS MANAGEMENT: Introduction – Process Migration – Threads.
DISTRIBUTED FILE SYSTEMS: Introduction – Features – File Models – File-Accessing Models – File-Sharing Semantics – File-Caching Schemes – File Replication – Fault Tolerance – Atomic Transactions – Design Principles.

UNIT V

NAMING: Introduction – Features – Fundamental Terminologies and Concepts – System-Oriented Names – Object-Locating Mechanisms – Human-Oriented Names – Name Caches – Naming and Security.

CASE STUDIES: Introduction – Amoeba – V-System – Mach – Chorus.

REFERENCE BOOKS:

1. Pradeep. K . Sinha. “Distributed Operating System” ,Second Edition PHI , 2001
2. Tanenbaum – Distributed Operating System”, Pearson Education.
3. Dhamdhare – Operating Systems : A concepts – based approach, TMH.
4. Singhal – Advanced Concepts in Operating Systems, 2001, TMH.
5. Tanenbaum – Distributed Systems : Principles & Paradigms, Pearson Education.

PAPER V - WIRELESS MOBILE COMMUNICATIONS

Subject Description - This Course presents the Wireless Mobile Communications.

Goals - To enable the students to learn the fundamentals of Wireless Transmission.

Objective

On successful completion of the course the students should have:

- Understood the wireless communication principles, wireless networking and wireless standards.

Contents

UNIT I

Introduction to Wireless Communication Systems: Evolution of Mobile Radio Communication - Applications - Comparison of common wireless Communication Systems - Trends in Cellular Radio and Personal Communications - Modern wireless Communication Systems.

UNIT II

Wireless Transmission: Frequencies for Radio transmission- Signals- Antennas - Signal Propagation – Multiplexing- Modulation- Spread Spectrum – **Medium access control:** Specialized MAC – SDMA- FDMA- TDMA - CDMA - FHMA - Radio Packet.

Tele Communication Systems : GSM - DECT - TETRA – UTMS-PACS - Personal Handy Phone System (PHS) - Pacific Digital Cellular (PDC) and IMT 2000.

UNIT III

The **Cellular Concept** - System Design fundamentals : Introduction - Frequency Reuse - Channel Assignment Strategies - Interference and System capacity - Trunking and Grade of Service - Improving coverage & Capacity in Cellular Systems.

UNIT IV

Wireless Networking: Introduction to wireless Networks - Differences between wireless and fixed telephone Networks - Development of Wireless Networks - Traffic Routing in Wireless Networks - Wireless Networks - Wireless Data Services –CCS- ISDN - Signaling system No: 7(SS7)- PCS / PCNs- Protocols for Network Access - Network Databases.

UNIT V

Wireless Systems and Standards : AMPS and ETACS - CDMA Digital Cellular standard (15 – 95) -Reverse CDMA channel - Scripting languages for Wireless Communication - An overview - components.

REFERENCE BOOKS :

- 1.Odore W.Rapport - Wireless Communications - Principals and Practice , Second Edition , 2002, Pearson Education.
2. Jochen Schillr - Mobile Communication, Addison Wesley, 2000.
3. Stallings – Wireless Communications & Networks, Pearson Education.
4. GARG – Wireless Network Evolution : 2G to 3G, Pearson Education.
5. Richharia – Mobile Satellite Communications : Principles and Trends, Pearson Education
6. Dornan – The Essential Guide to Wireless Communications Applications, Pearson Education

PAPER VI - ADVANCED NETWORKING

Subject Description

This Course presents the advanced networking concepts

Goals

To enable the students to know what is IP addressing ,Routing and Internetworking

Objective

On successful completion of the course the students should have:

- Understood the advanced trends like satellite networking and cellular networking.

Contents

UNIT I

Inter Networking: Principles of Internetworking - The Bridge - Routing with Bridges -Connectionless Internetworking –Connectionless Internetwork Protocol Standard-Router level Protocols -Connection Oriented Internetworking. Distributed Applications: Network Management. SNMP V2-File Transfer: TM

UNIT II

Internet Address -Mapping Internet Address to physical Address(ARP)-Determining an Internet address at Startup(RARP) -Transparent gateways and subnet addressing - Multicast addressing-Client -Server Model of interaction- bootstrap protocol -Domain Name System-Address discovering and Binding.

UNIT III

IP: Connectionless Datagram Delivery Routing IP datagrams Error and Control message (ICMP) -Protocol Layering- UDP-Reliable Stream Transport service.

Routing: Cores, Peers and Algorithms- Exterior Gateway Protocol and Autonomous system - Routing in an Autonomous System.

UNIT IV

Mobile IP -Private Network Interconnection - The Socked Interface. **Application:** Remote login-File Transfer & Access -Electronic Mail - Voice and Voice over IP.

UNIT V

Satellite Network: Pros and Cons of satellite networks- Using Satellite to Communicate-Conventional Multiplexing- Polling – Selection-Nonpolling peer /peer system- Nonpolling: primary Secondary Systems, Satellite delay units, the teleport.

Firewall: Firewall gateways-Authentication gateway tools.

REFERENCE BOOKS:

1. Douglas E.Comer, 'Internetworking with TCP/IP Volume I', Pearson Education,98
2. William R. Cheswic, Steven M. Bellovin, "Firewalls and Internet Security"
3. William Stallings,"Data & Computer Communication", 4th Edition. Prentice Hall of India.

4. Stallings – “SNMP, SNMPV₂, SNMPV₃ & RMON 1& 2, third edition, Pearson Education.
5. Cheswick – “Firewalls and Internet Security”, Pearson Education.
6. Paul Simoneau – “SNMP – Network Management”, Tata McGraw Hill.
7. Prichard – “Satellite Communications System Engineering”.

PAPER VII - UNIX NETWORK PROGRAMMING

Subject Description

This Course presents the basics of Unix Network programming

Goals

To enable the students to learn the UNIX File System and communication protocols.

Objectives

On successful completion of the course the students should have:

- Understood the UNIX socket programming & Client Server Fundamentals.

Contents

UNIT I

Introduction – Unix – File Structure – File System – File System Calls – Process identifiers – InterProcess Communication – Basic definitions – Input and Output Signals – Process control – Daemon process – Files & Record. Locking – pipes – FIFOs – Streams and Messages – Semaphores – Shared Memory – Socket & TLI.

UNIT II

Communication Protocols : TCP/IP – The Internet Protocols –Xerox Network Systems – Network Architecture – NetBIOS – OSI Protocols – UNIX to UNIX Copy – Protocol Comparisons.

UNIT III

Berkeley Sockets : Unix Domain Protocols – Socket Addresses – Elementary Socket System calls – A Simple Example – Advanced Socket System Calls – Reserved ports – Stream Pipes – passing File descriptors – Socket Options – A Synchronous I/O – I/O Multiplexing – Out of Band Data – Socket & Signals - Internet Super server – Socket Implementation.

UNIT IV

System V Transport Layer Interface : Transport end point addresses – Elementary TLI Functions – Advanced TLI Functions – Streams – TLI Implementation – Stream Pipes – Passing File Descriptors – Input/Output Multiplexing – Asynchronous I/O – Out of Band Data.

UNIT V

Ping Routines : Internet ping Client – XNS Echo Client – Trivial File Transfer Protocol : Security – Data Formats – Connections – Client User Interface – UDP Implementation – TCP

Implementation - Remote Login : Terminal Line Disciplines – Pseudo Terminals – Terminal Modes – Control Terminals – rlogin Overview – Windowing environments – Pseudo Terminal Packet Mode – rlogin client – rlogin server.

REFERENCE BOOKS :

- 1.W.Richard Stevens," UNIX Network Programming". PHI, New Delhi,1992.
2. W.Richard Stevens," UNIX System Programming". PHI, New Delhi,1992.

PAPER VIII - WEB SERVICES

Subject Description

This Course presents the Web Services Provided.

Goals

To enable the students to learn what is web service and Protocols used for Web services .

Objective

On successful completion of the course the students should have:

- Understood how to build the real world applications using Web Services.

Contents

UNIT I

Overview of Distributed Computing – Introduction to Web Services – Industry Standards – Technologies and Concepts underlying Web services – their support to Web Services, Applications that consume Web Services.

UNIT II

XML – its choice for Web Services – Network Protocols to back end databases – Technologies – SOAP,WSDL – exchange of information between applications in distributed environment – Locating remote Web Services – its access and usage.

UDDI specification – an introduction.

UNIT III

A brief outline of Web Services – Conversation – static and interactive aspects of system interface and its implementation, Work Flow – orchestration and refinement,Transactions,Security issues – the Common attacks – security attacks facilitated within the Web Services – Quality of Services – Architecting of System to meet user requirement with respect to latency,performance,reliability,QOS metrics, Mobile and Wireless Services – energy Consumption,network bandwidth utilization,Portals and Services Management.

UNIT IV

Building real world Enterprise applications using Web Services – sample source codes to develop Web Services – Steps necessary to build and deploy Web Services and client applications to meet Customer's requirement – Easier development,Customization,maintenance,Transactional requirements,seamless porting to multiple devices and platforms.

UNIT V

Deployment of Web Services and applications onto Tomcat application Server and Axis SOAP server (both are freewares) - Web Services Platform as a set of enabling technologies for XML based distributed computing.

REFERENCE BOOKS:

1. Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services : An Architecture Guide", Prentice Hall, Nov 2003.

PAPER X - DESIGN OF NETWORK OPERATING SYSTEM

Subject Description

This Course presents the Design of Network Operating System

Goals

To enable the students to learn How to analyze and design the operating system.

Objective

On successful completion of the course the students should have:

- Understood the types of Network Operating System & role of the NOS in Network Management.

Contents

UNIT I

Introduction to Network Operating System: Principles of a Network Operating System (N.O.S) – Major Functions – Comparison of Leading N.O.S – Key Issues for Users and Purchasers of NOSs. Types of NOS: Netware Collection – LAN Manager Family – IBM LAN Server – UNIX – OS/2 – Banyan Vines.

UNIT II

Low – Cost NOS for Small LANs : Leading NOS and their difference – Basic functions of peer – to – peer NOSs – Powerlan from performance Technology – LAN tastic from Artisoft – 10 Net – Windows fro Workgroups (ver 3.1) from Microsoft – Personal Netware – Sage Mainlan Ver 4.0 – Apple Talk – Groupware Packages: Lotus Notes 3.0 and Wordperfect Office 4.0. **Network Co-Operation:** Large Size Networks involving Network Interoperate – Different NOSs need to Interoperate. **Access Across Networks:** Types of Access Across the Network – Lan Interconnection – NOS support to Interconnection of LANs

UNIT III

Role of NOS in Network Management: Functions of Network Management – Elements of a Network that need to be managed – Role of NOS in a larger Network Management – Standards of Network Management – NOS Support of Network Management.

Role of NOS in Network Computing: Concept of Network Computing – Need for Network Computing – Ingredients – NOS in Network Computing – Client / Server Model.

UNIT IV

LINUX: Basic LINUX operations-Memory Address- Interrupts- Process Addressing- Process Scheduling –Program Execution .

UNIT V

Netware: Basic Novell Netware- Novell Directory Services – Operation & Maintenance –Administration.

REFERENCE BOOKS:

1. Philip Hunter, “Network Operating System”, Addison Wesley.
2. Daniel P. Bovet & Marco Cesati ,” Understanding The LINUX Kernal” ,O’ Reily, 2001
3. Jeffrey.F. Hughes & Blair .W. Thomas “ Netware 5 Hand Book”, Novell Series, 2001.
4. Philip Hunter, “Local Area Networks”, Addison Wesley.
5. Johnson – Linux Application Development, Pearson Education.
6. Sobell – A practice guide to Linux, Pearson Education.
7. Peterson – Linux : The complete reference, fifth edition, TMH.

PAPER XI - FDDI AND ATM BASED NETWORKS

Subject Description

This Course presents Fundamentals of FDDI and ATM based Networks.

Goals

To enable the students to learn the FDDI protocols, Frame Relay and ATM .

Objectives

On successful completion of the course the students should have:
Understood the trends in advanced networking

Contents

UNIT I

FDDI History – Need – FDDI Protocol Components – types of modes – types of ports – Fundamentals of Optical Communication. Optical Components : Physical layer medium dependent – single mode fiber – low cost fiber.

UNIT II

FDDI on twisted pair copper cables – buying and installing fiber cables – design and analysis of cable plant – buying FDDI products – performance under heavy load - performance under normal load.

UNIT III

Frame Relay: Frame Relay Protocols and Services – Frame Relay Congestion Control.

Unit IV

Broadband ISDN : Broadband ISDN Architecture – Broadband ISDN Protocols.

UNIT V

ATM: ATM Protocols – ATM Traffic and Congestion Control.

RERERENCE BOOKS:

1. Raj Jain,,: FDDI Handbook – High speed networking using fiber and other media”, Addison Wesley, 1994.
2. Stallings,,”ISDN and Broadband ISDN with Frame Relay and ATM,” 4th Edition
- 3.Rainer Handel,Manfred N.Huber Stefan Schrodes,,”ATM Networks”, Pearson Education.

PAPER XII - C# AND .NET FRAMEWORK

Subject Description

This Course presents the Visual Studio.NET programming Framework and fundamentals of C# programming.

Goals

To enable the students to learn the C# programming Language

Objectives

On successful completion of the course the students should have:

- Understood the Common Language Runtime, Managed code, GDI++ and how to develop a web application using C#.

Contents

UNIT I

The .NET Framework : Quick Introduction to .NET – The Common Language Runtime – Intermediate Language – Working with Managed code - Extensions to C++ - Introducing Visual Studio.NET.

UNIT II

C# Language : C# Basics – Advanced C#.

Windows Forms : Introduction to Windows Forms – User Interface Components.

UNIT III

Windows Forms(contd.) : Databound Controls – Windows Forms – Example Application – GDI+ : The .NET Graphics Interface.

UNIT IV

Web Technologies : ASP.NET - .NET Data Access – Web Forms – Web Services.

UNIT V

Component Usage : Assemblies – Signing and Versioning - COM Interoperability – Threads.

REFERENCE BOOKS:

1. Richard L. Weeks, Robert Powell, "C# and the .NET Framework", Sams Publishing.

ELECTIVE I FOR PAPER IX

ELECTIVE I.1 - HIGH SPEED NETWORKS

Subject Description - This Course presents the High Speed Network concepts.

Goals - To enable the students to learn the high speed LAN and ISDN.

Objective

On successful completion of the course the students should have:

- Understood the congestion control in networks & principles of ISDN

Contents

UNIT I

Introduction – a brief networking history – the need for speed and quality of service – Advanced TCP/IP and ATM networks. High speed networks – frame relay – asynchronous transfer mode – high speed LANs.

UNIT II

Congestion and traffic management: congestion control in data networks and internets – link level flow and error control – TCP traffic control – traffic and congestion control in ATM networks.

UNIT III

Quality of service in IP networks: integrated and differentiated services – protocols for QoS support. Compression: Overview of information theory – lossless compression – lossy compression.

UNIT IV

ISDN : The integrated digital network – Overview of ISDN – transmission structure – user access – ISDN protocols – Broadband ISDN – NT1, NT1 plus, and voice communication basics – terminating ISDN connection via NT1, basics of NT1 and NT1 plus – The ISDN voice communication revolution – ISDN voice communication primer.

UNIT V

Management bandwidth – scope bandwidth management – traffic performance – traffic management – traffic characteristics – devices – path selection. Case study.

REFERENCE BOOKS:

1. William Stallings, “High speed Networks and Internets”, Person Education Asia.
2. David Angell, “ISDN for Dummies”, Comdex computer publishing, Second Edition, 1996.
3. Alistair croll, Eric packman, “Managing bandwidth”, Pearson Education, First Edition, 2001.
4. Parnell – “Building high speed networks”, Tata McGraw Hill Edition.

ELECTIVE I.2 - NEURAL NETWORKS AND FUZZY SYSTEMS

Subject Description

This Course presents the details of Neural Networks and Fuzzy Systems

Goals

To enable the students to learn the fundamentals of Neural Networks and Fuzzy Systems

Objective

On successful completion of the course the students should have:

- Understood the trends and principles of Hopfield Networks and Fuzzy Sets

Contents

UNIT I

Pattern classification – Learning Generalization – Structure of neural networks – ADA line, Delta rule – input output value – perceptions – Linear separability – Back propagation – XOR Function – Introduction to Boolean Neural Networks.

UNIT II

Hopfield Networks – Energy – The Hamming Network – RAM – Boltzmann machine – Instar, Outstar Network – ART – Kohonen's Network Neocognitron.

UNIT III

Fuzzy relation – Member function – Fuzzy matrices – Fuzzy Entropy – Fuzzy operation – Fuzzy composition.

UNIT IV

Fuzzy variables – Linguistic Variables – Measure of fuzziness – Transition Matrix – Concept of Defuzzification and applications

UNIT V

CASE STUDY : Application of Neural Networks in Character recognition, drug discovery, speech recognition, Application of Fuzzy logic Concepts in Fuzzy Controller design and Fuzzy querying in Relational Database Model.

REFERENCE BOOKS:

1. P.D.Wasserman,"Neural Computing and practice",Van Nostran ReinHold, NewYork, 1991.
2. Limin Fu,"Neural Network in Computer Intelligence", McGraw Hill International editions,1994
3. B Kosko."Neural Network and Fuzzy Systems",Prentice Hall,1996.
4. Klir & Yuan."Fuzzy Sets and Fuzzy Logic", Theory and Applications,Prentice Hall of India.

ELECTIVE I.3 - MULTIMEDIA

Subject Description

This Course presents the Multimedia basics

Goals

To enable the students to learn the fundamentals and Tools in Multimedia to develop applications

Objectives

On successful completion of the course the students should have:

- Understood How to design the Web page using Multimedia

Contents

Unit I

What is Multimedia – Introduction to making Multimedia – Macintosh and Windows Production platforms – Basic Software tools.

Unit II

Making Instant Multimedia – Multimedia authoring tools – Multimedia building blocks – Text – Sound.

Unit III

Images – Animation – Video

Unit IV

Multimedia and the Internet – The Internet and how it works – Tools for World Wide Web – Designing for the World Wide Web.

Unit V

High Definition Television and Desktop Computing – Knowledge based Multimedia systems.

RERERENCE BOOKS

1. Tay Vaughan, “Multimedia making it work”, Fifth Edition, Tata McGraw Hill
2. John F. Koegel Bufford, “Multimedia Systems”, Pearson Education
3. Multimedia in Practice (Technology and Applications) – Judith Jeffloate – PHI

ELECTIVE I.4 - DATAMINING AND DATA WAREHOUSING

Subject Description

This Course presents the Data mining and Data warehousing Fundamentals

Goals

To enable the students to learn about Visualization, KDD and OLAP tools

Objectives

On successful completion of the course the students should have:

- Understood what is Data Mining and how it is done and What is the need of Data Warehouse

Contents

Unit I

Expanding Universe of Data - Production Factor - Data Mining - Data Mining Versus Query Tools - Data Mining in Marketing - Practical Applications Learning - Self-Learning Computer Systems - Machine Learning and Methodology of Science - Concept Learning.

Unit II

Knowledge Discovery Process - Data Selection - Cleaning - Enrichment - Coding - Data Mining - Preliminary Analysis of the Data Set Using Rational Query Tools - Visualization Technique - Likelihood and Distance - OLAP Tools - K-Nearest Neighbor - Decision Trees - Association Rules - Neural Networks - Genetic Algorithms - Reporting. Different forms of Knowledge - Getting Started - Data Selection - Cleaning - Enrichment - Coding - Reporting - KDD Environment - Ten Golden Rules

Unit III

DATA WAREHOUSE - Introduction-Architecture: System Process-Process Architecture, DESIGN: Database Schema-Partitioning Strategy-Aggregations-Data Marting-Metadata.

Unit IV

Hardware and Operational Design: Hardware Architecture - Physical Layout-Security-Backup and Recovery-Service Level Agreement-Operating and Data Warehousing.

Unit V

Capacity planning - Tuning and Data warehouse - Testing and Data Warehouse -Data Warehouse Futures.

RERERENCE BOOKS

1. Pieter Adriaans, Dolf Zantinge, 'Data Mining', Pearson Education,1998.
2. Sam Anahory and Dennis Murray-"Data warehousing in the real world"-Pearson Education

ELECTIVE II FOR PAPER XIII

ELECTIVE II .1 - OPTICAL FIBER COMMUNICATION

Subject Description

This Course presents the communication using Optical Fiber.

Goals

To enable the students to learn about Optical Fiber Structure Usage

Objective

On successful completion of the course the students should have:

- Understood the practical applications of Fiber Optics.

Contents

Unit I

OPTICAL FIBER,STRUCTURES AND WAVEGUIDES FUNDAMENTALS :

Optical fiber models and configuration fiber types – step index fiber structure ray optic representation – wave representation – mode theory of circular wave guides – Maxwell's equation – wave index for step index fibers – power flow in step index fiber – graded index fiber structure – graded index numerical structure.

Unit II

SIGNAL DEGRADATION IN OPTICAL FIBERS : An overview attenuation – attenuation units – core cladding loss –signal distortion in optical wave guides – information capacity determination – group delay – materials dispersion – wave guide dispersion intermodal dispersion – Pulse broadening in graded index wave guides – mode coupling.

Unit III

POWER LAUNCHING AND COUPLING : Source to fiber power launching source output pattern – power coupling calculations – power launching versus wavelength – equilibrium numerical aperture – launching schemes for coupling improvement imaging

micro spheres – laser diode to fiber coupling – fiber to fiber joints mechanical misalignment
 fiber splicing losses – fiber end face preparation – splicing techniques.

Unit IV

APPLICATIONS AND FUTURE DEVELOPMENTS : Introduction – Public Network application – trunk network junction network, local access networks, submerged systems, synchronous network. Military applications : Mobile communication links. Civil, consumer and industrial applications.

Unit V

ADVANCED SYSTEMS AND TECHNIQUES : Wavelength division multiplexing – LAN: Optical fiber bus – ring topology – star architecture – file state fiber nodes. Optical Amp : Basic application – optical amp types – gain – Amp noise is figure – optical bandwidth. Photonic switching – mechanical switches – integrated optical switch.

RERERENCE BOOKS:

1. Gerd Kesier – Optical fiber Communication.
2. John.M. Senior – Optical Fiber Communication Principle and Practice.
3. Henry Zanger and Cyntnia Zanger – Fiber Optics communications and other application, MaxWell International Edition.
4. N.Sharma – Fiber Optic Telecommunication, Tata McGraw Hill.
5. K.Kao Charles – Optical Fiber Systems : Technology, Design and Application, McGraw Hill.
6. Black – Optical Networks : Third generation transport Systems, Pearson Education.
7. Mynbaev – Fiber Optics Communication Technologies, Pearson Education.

ELECTIVE II.2 - DISTRIBUTED COMPUTING

Subject Description

This Course presents the Data Distribution through the Network.

Goals

To enable the students to learn about decentralization of data to acquire reliability and availability of data.

Objective

On successful completion of the course the students should have:

- Understood what is the need of data distribution and how it can be done.

Contents

Unit I

Distributed Systems : Fully Distributed processing Systems, Networks and Interconnection Structures, Designing a Distributed System.

Unit II

Distributed Systems : Pros and Cons of Distributed processing, Distributed Databases, the challenge of Distributed Data, Loading Factors, Managing The Distributed Resources, Division of responsibilities.

Unit III

Design Considerations : Communications Line Loading, Line Loading Calculations, Partitioning and Allocation, Data Flow Systems, Dimension Analysis, Network Database Design Considerations, Ratio Analysis, Database Design Decision Trees, Synchronization of Network Databases.

Unit IV

Client-Server Network Model : Concept – File Server – Printer Server – An e-mail server.

Unit V

Distributed Databases : An Overview - Distributed Databases – Principles of distributed databases – levels of transparency – Distributed Database Design – The R* Project Technique Problems of Heterogeneous Distributed Databases.

RERERENCE BOOKS:

1. John A. Sharp, "An Introduction to Distributed & Parallel Processing", Blackwell Scientific Publications, 1987. (Unit I)
2. Uyless D. Black, "Data Communications & Distributed Networks". (Unit II & III)
3. Joel M. Crichlow, "An Introduction to Distributed & Parallel Computing". (Unit IV)
4. Stefans Ceri, Ginseppe Pelagatti, "Distributed Databases Principles and Systems", McGraw Hill Book Co., New York, 1985. (Unit V)

ELECTIVE II.3 - REAL TIME SYSTEMS

Subject Description

This Course presents the fundamentals of Real Time Systems

Goals

To enable the students to learn about Task ,scheduling of Tasks& Processor scheduling for Real time systems

Objectives

On successful completion of the course the students should have:

- Understood the concept of Real Time Systems, Programming Languages and tools for the development of Real Time Systems and Real Time Databases

Contents

UNIT I

Introduction – Characterizing Real-Time Systems and Tasks: Introduction – Performance Measures for Real-Time Systems – Estimating Program Run Times.

UNIT II

Task Assignment and Scheduling : Introduction – Classical Uniprocessor Scheduling Algorithms – Task Assignment – Mode Changes – Fault Tolerant Scheduling.

UNIT III

Programming Languages and Tools : Introduction – Desired language characteristics – data typing control structures – Facilitating Hierarchical Decomposition – Packages – Run-Time Error Handling- Overloading and Generics – Multitasking – Low Level Programming – Task Scheduling – Timing Specifications – Some experimental languages – Programming Environments – Run-Time Support.

UNIT IV

Real-Time Databases : Introduction – Basic Definitions – Real-Time vs. General-Purpose Databases -
Main Memory Databases – Transaction Priorities – Transaction Aborts – Concurrency Control Issues – Disk Scheduling Algorithms – Maintaining Serialization Consistency – Databases for Hard Real-Time Systems.

UNIT V

Real-Time Communication : Introduction – Network topologies – Protocols.

REFERENCE BOOK :

C.M.Krishna, Kang G. Shin, "Real-Time Systems", McGRAW Hill International Editions.

ELECTIVE II.4 - MASTERING LAN AND TROUBLESHOOTING

Subject Description

This Course presents the details of Local Area Networks.

Goals

To enable the students to learn about the internal organization of a PC

Objective

On successful completion of the course the students should have:

- Understood types of faults and how to solve the problems

Contents

UNIT I

PC- HARDWARE OVERVIEW

Introduction to computer organization-Memory-PC family-PC hardware-interconnections between Boxes-Inside the boxes:-motherboard, daughter boards, floppy disk drive, HDD, speaker, mode switch, front panel indicators & Control-mother board logic-memory space-I/O port address-wait state-interrupts -I/O data transfer-DMA channels-POST sequence.

UNIT II

PERIPHERAL DEVICES

Floppy drive controller-Overview-Disk format-FDC system interface-FDD interface Hard Disk controller-overview-Disk Drives and interface-controller post description Hard disk card-Hard disk format.

Display Adapter:-CRT display- CRT controller principle -CRT controller 6845 **Printer controller**:-Centronics interface-programming sequence -Hardware overview-printer-sub assemblers.

UNIT III

MOTHERBOARD CIRCUITS

Mother board functions-functional units and inter communications:-Reset logic -CPU nucleus logic-DMA logic-Wait state logic-NM logic-speaker logic-keyboard interface-SMPS.

UNIT IV

INSTALLATION AND MAINTENANCE

Introduction-pre installation planning -installation practice-routine checks-special configuration memory up gradation - HD up gradation - DOS command(Internal and external).Preventive maintenance-system usage.

UNIT V

TROUBLE SHOOTING

Computer faults-nature of faults -types of faults -diagnostic programs and tools-fault elimination-systematic trouble shooting procedure mother board problem-serial port problems-FDC, HDC, display problems- display adapter-printer problem -monitor problems, HDC,FDC problems.

REFERENCE BOOKS:

1. B.Govindaraulu - "IBM PC and Clones", Tata McGraw Hill Co.1995.
2. Robert C Brenner - "IBM PC Trouble shooting and Repair guide", BPB publications.
3. Winn & Rosch - "Hardware Bible" , Tec media.
4. Ray Duncan - "Dos Programming".
5. Zacker – “Upgrading & Trouble shooting Networks – the complete reference”, Tata McGraw Hill edition.
6. Meyers – “Introduction to PC Hardware and Trouble shooting”, Tata McGraw Hill editions.

COMPULSORY DIPLOMA IN SOFTWARE QUALITY ASSURANCE (DSQA)

DIPLOMA PAPER I : SOFTWARE QUALITY ASSURANCE

Subject Description

This Course presents the essentials of Software Quality, Plan for SQA, Standards, Tools for SQA.

Goals:

To enable the students to learn the Concepts and Principles of SQA.

Objectives :

On successful completion of the course the students should have:

- Understood the principles of SQA
- Must be able to judge the quality of Softwares.

Content

UNIT I

Introduction to software quality – Software modeling – Scope of the software quality program – Establishing quality goals – Purpose, quality of goals – SQA planning software – Productivity and documentation.

UNIT II

Software quality assurance plan – Purpose and Scope, Software quality assurance management - Organization – Quality tasks – Responsibilities – Documentation.

UNIT III

Standards, Practices, Conventions and Metrics, Reviews and Audits – Management, Technical review – Software inspection process – Walk through process – Audit process – Test processes – ISO, cmm compatibility – Problem reporting and corrective action.

UNIT IV

Tools, Techniques and methodologies, Code control, Media control, Supplier control, Records collection, Maintenance and retention, Training and risk management.

UNIT V

ISO 9000 model, cmm model, Comparisons, ISO 9000 weaknesses, cmm weaknesses, SPICE – Software process improvement and capability determination.

REFERENCES

1. Mordechai Ben – Meachem and Garry S.Marliss, “Software Quality – Producing Practical, Consistent Software”, International Thompson Computer Press, 1997
2. Watt. S. Humphrey, “Managing Software Process”, Addison – Wesley, 1998.
3. Philip.B.Crosby, “Quality is Free : The Art of making quality certain”, Mass Market, 1992.

DIPLOMA PAPER II : SOFTWARE RELIABILITY

Subject Description

This course provides the insight in to the reliability factors of the Software.

Goal :

To enable the students to learn about the principle and concepts of Software reliability.

Objectives :

On successful completion of the course the students must have

- understood the concepts of Software reliability
- analysed the quality standards

Content

UNIT I

Software Reliability Definitions - software disasters - Errors - faults - failures - different views of software reliability – software requirements specification - Causes of unreliability in software - Dependable systems: reliable, safe, secure, maintainable, and available - Software maintenance.

UNIT II

The phases of a Software Project - Monitoring the development process – The software life cycle models - software engineering - Structured Analysis and structured Design - Fault tolerance - Inspection - Software cost and schedule.

UNIT III

Software quality modeling - Diverse approaches and sources of information - Fault avoidance, removal and tolerance - Process maturity levels (CMM) - Software quality assurance (SQA) - Monitoring the quality of software - Total quality management (TQA) - Measuring Software Reliability - The statistical approach - Software reliability metrics.

UNIT IV

Data Trends - Complete prediction Systems - overview of some software reliability models - The recalibration of the models - Analysis of model accuracy - Reliability growth models and trend analysis - Software Costs Models - Super models.

UNIT V

Testing and maintaining more reliable software –logical testing – functional testing – algorithm testing – regression testing - fault tree analysis – failure mode effects and critical analysis – reusability - case studies.

REFERENCES

1. J.D. Musa, A. Iannino and K.Okumoto, Software Reliability, Measurement, Prediction, Application, McGraw Hill, 1990.
2. J.D. Musa, Software Reliability Engineering, McGraw Hill, 1998.
3. Michael R. Lyer, Handbook of Software Reliability Engineering, McGraw Hill, 1995.
4. Xie, M., Software Reliability Modelling, World Scientific, London, 1991.

DIPLOMA PAPER III : : SOFTWARE TESTING

Subject Description

This course provides principles of Software Testing and about tools.

Goal :

To enable the students to learn about the principle and tools of Software testing.

Objectives :

On successful completion of the course the students must have

- understood the concepts of Software testing
- got the skill of software testing
- exposed to software testing tools.

Content

UNIT I

Purpose of Software testing – Some Dichotomies – a model for testing – Playing pool and consulting oracles – Is complete testing possible – The Consequence of bugs – Taxonomy of Bugs.

UNIT II

Software testing Fundamentals – Test case Design – Introduction of Black Box Testing and White Box testing – Flow Graphs and Path testing – Path testing Basics - Predicates, Path Predicates and Achievable Paths - Path Sensitizing – Path Instrumentation – Implementation and Application of Path Testing.

UNIT III

Transaction Flow testing – Transaction Flows – techniques – Implementation Comments – Data Flow Testing – Basics – Strategies – Applications, Tools and effectiveness – Syntax Testing – Why, What, How – Grammar for formats – Implementation – Tips.

UNIT IV

Logic Based Testing – Motivational Overview – Decision tables – Path Expressions – KV Charts – Specifications – States, State Graphs and transition Testing – State Graphs – Good & bad states – state testing Metrics and Complexity.

UNIT V

Testing GUIs – Testing Client – Server Architecture – Testing for Real-time System – A Strategic Approach to Software testing – issues – unit testing – Integration Testing – Validation testing – System testing – The art of Debugging.

REFERENCES :

1. Boris Beizer, Software testing techniques, Dreamtech Press, Second Edition – 2003.
2. Myers and Glenford.J., The Art of Software Testing, John-Wiley & Sons,1979
3. Roger.S.Pressman, Software Engineering – A Practitioner’s Approach ,Mc-Graw Hill, 5th edition, 2001
4. Marnie.L. Hutcheson, Software Testing Fundamentals, Wiley-India,2007

DIPLOMA PAPER IV : SOFTWARE TESTING LAB

Subject Description

This course provides hand on experience of Software Testing tools.

Goal :

To enable the students to learn about the usage of tools of Software testing.

Objectives :

On successful completion of the course the students must have

- understood the concepts of Software testing
- got the skill of software testing tools
- expertise in using software testing tools.

Running and testing in any one of the following Testing tools :

- WinRunner
- Silk Test
- SQA Robot
- LoadRunner
- JMeter
- TestDirector
- GNU Tools (Source Code Testing Utilities in Unix / Linux)
- Quick Test Professional

REFERENCE :

Dr.K.V.K.K.Prasad, Software Testing Tools, Dreamtech Press, 2007

MODEL QUESTION PAPERS
M Sc. Computer Communication
First Semester - DATA COMMUNICATIONS AND NETWORKING

Time : Three hours

Maximum :75 Marks

Answer ALL the questions.

SECTION A – (10*1=10 marks)

1. What is data communication?
2. What is called line configuration?
3. What is modulator?
4. Expand ASK.
5. What is MTSO?
6. What is called burst error?
7. Expand BRI.
8. Expand FDDI.
9. Expand PVC.
10. Define routers.

SECTION B – (5*5=25 marks)

1. (a) What are the components of Data communication? **Or**
(b) What are the different transmission modes?
12. (a) Write about PSK. **Or**
(b) Write a note on data transmission.
13. (a) Write a note on the guided media. **Or**
(b) Write about satellite communication.
14. (a) Write a note on PDU. **Or**
(b) Discuss the ISDN services.
15. (a) Write about the service classes of ATM. **Or**
(b) Write about distance vector routing.

SECTION C – (5*8=40 marks)

16. (a) Explain the different topologies. **Or**
(b) Explain about analog and digital signals.
17. (a) Explain Digital to Analog conversion methods. **Or**
(b) Explain the following :
(i) Modems (ii) DTE-DCE Interface
18. (a) Write and explain the advantages and disadvantages of optical fiber. **Or**
(b) Discuss about the transmission impairment.
19. (a) Write about the Fast ethernet in detail. **Or**
(b) Explain in detail Broadband ISDN.
20. (a) Explain the ATM architecture. **Or**
(b) Explain in detail the types of bridges.

First Semester - INTERNETWORKING TECHNOLOGIES

Time : Three hours

Maximum : 75 marks

SECTION A (10 * 1 = 10 marks)

1. What is Internetworking?
2. What is the function of Network layer?
3. What is the use of diagnostic command?
4. Mention any omne of the CISCOs diagnostic tool.
5. Expand ICMP.
6. Expand EIGRP.
7. What is ITU-T?
8. What is DCE?
9. What is IPX networking?
10. Mention any one CISCO diagnostic function for troubleshooting Switched Ethernet.

SECTION-B(5*5=25 marks)

11. a) Write a note on troubleshooting Methodology. **Or**
b) Write about protocol attributes.
12. a) Write about diagnostic commands. **Or**
b) How to understand the output from the diagnostic commands?.
- 13.a) Describe the problem isolation in TCP/IP. **Or**
b) Describe the WAN access problems.
14. a)Write short notes on troubleshooting serial lines. **Or**
b) Write short notes on troubleshooting x.25.
- 15.a) Write notes on Novell connectivity. **Or**
b) Write about router diagnostic tools.

SECTION – C (5 *8 = 40 marks)

16. a) Describe in detail about the complexity of internetworks.. **Or**
b) Describe the generic troubleshooting tools.
17. a) Explain in detail about Troubleshooting commands. **Or**
b) Explain how to apply CISCOs diagnostic tools?.
18. a)Explain about TCP/IP router diagnostic tools. **Or**
b) Describe the LAN connectivity problems.
19. a) Explain about troubleshooting Frame Relay. **Or**
b) Explain about troubleshooting ISDN.
20. a) Explain the IPX networking fundamentals. **Or**
b)Explain the common Novell troubleshooting issues..

First Semester - ADVANCED JAVA PROGRAMMING

Time : Three hours

Maximum : 75 marks

SECTION A (10 * 1 = 10 marks)

Choose the best answer

1. A column (or) group of column that uniquely identifies a row of a table
a) Key b) database c) schema d) none
2. This statement deletes a row from a table
a) DROP b) DELETE c) UPDATE d) none
3. It is a local proxy for remote object.
a) STUB b) CORBA c) IDL d) none
4. This is built upon the fundamental notion of local and remote object
a) DCOM b) RMI c) Both a) and b) d) none
5. The tuple 4b class represents a point in _____ space.
a) 3 b) 4 c) 5 d) none

Fill up:

6. _____ databases are originated into tables that consists of rows and columns.
7. The _____ table statement adds a row to an existing table.
8. _____ object are instances of classes and are organized into interfaces.
9. The _____ class is used to format and layout stylized text.
10. _____ supports persistence through object serialization.

SECTION-B (5*5=25 marks)

- 11.. a) What is JDBC ? Explain. Or
b) Describe the driver manager class and the Driven Interface
- 12 a) Describe the distributed computing environment Or
b) Explain Java Remote methods invocation.
13. a) Describe about the Java OS Kernel. Or
b) Explain the implementing native methods.
14. a) Discuss the components and containers of Java beans Or
b) Write down the interface methods and properties of java beans.
- 15 a) Explain the semantics of JSP. Or
b) Describe the various declarations available in JSP.

SECTION – C(5*8=40 marks)

16. a) Explain the SQL in Detail. Or
b) Discuss the multimedia and SQL Applets
- 17.a) Explain the following :
i) Random Client Class ii) The Bootstrap Class Or
b) Describe about the Java IDL and ORB.
18. a) Discuss the following :
i) Antialiasing ii) Drawing Graphics Or
b) Explain in detail about Java 3D ADI.
19. a) Describe the working principles of Beans in detail. Or
b) Explain the design support and introspection support.
20. a) Discuss in detail about JSP expressions and scriptlets Or
b) Discuss the following : i) JSP Syntax ii) JSP Directives.

**First Semester - Computer Communication
DISTRIBUTED OPERATING SYSTEM**

Time : Three hours

Maximum :75 Marks

**Answer ALL the questions.
SECTION A – (10*1=10 marks)**

1. Define Distributed Operating System.
2. What is IPC?
3. Define DSM.
4. What is thrashing?
5. What is deadlock?
6. What is load balancing?
7. What is a process?
8. What is fault tolerance ?
9. What is naming?
10. What is a name cache?

SECTION B – (5*5=25 marks)

11. (a) Discuss the evolution of Distributed OS. Or
(b) Write the features of message passing?
12. (a) Write about RPC. Or
(b) Write a note on DSM.
13. (a) Write about Clock Synchronization.. Or
(b) Write note on Load balancing.
14. (a) Write about threads. Or
(b) Explain the file models.
15. (a) Write about naming. Or
(b) Explain Object Locating Mechanism.

SECTION C – (5*8=40 marks)

16. (a) Explain the issues in IPC by message passing Or
(b) Explain about process addressing and failure handling.
17. (a) Explain the various communication protocols. Or
(b) Explain about DSM design and Implementation.
18. (a) Write and explain about mutual exclusion and deadlock. Or
(b) Discuss about the features of resource management. Write notes on task assignment.
19. (a) Write about the file Accessing models and file sharing semantics. Or
(b) Explain about File caching and Replication.
20. (a) Explain about system oriented names and human oriented names. Or
(b) Explain in detail about naming and security.

First Semester - Computer Communication
WIRELESS MOBILE COMMUNICATIONS

Time : Three hours

Maximum :75 Marks

Answer ALL the questions.
SECTION A – (10*1=10 marks)

1. The expansion for CDMA is _____.
2. Short Message Service offers transmission of messages up to _____ characters.
3. Which method is used in TDMA for signal separation?
4. Expand GSM.
5. What is the time slot for GSM ?
6. What is the protocol used for BTS-BSC Interface ?
7. _____ is the gateway for MSC to interface with external networks for communication with users outside GSM.
8. What is STP ?
9. What is Radio Resource Management?
10. What is OSS?

SECTION B – (5*5=25 marks)

11. (a) How are guard spaces realized between users in CDMA ? Or
 (b) List the differences between CDMA and TDMA.
12. (a) Name some key features of the GSM systems. Or
 (b) Write about synchronous digital hierarchy.
- 13.. (a) How does roaming done in GSM? Or
 (b) List some GSM operators in India.
14. (a) List the OSI layers of GSM Or
 (b) Write notes on frequency management.
15. (a) Draw the block diagram of OSS organizations Or
 (b) Write a note on Mobile Equipment Management..

SECTION C – (5*8=40 marks)

16. (a) Explain TDMA in Detail.(Or) Or
 (b) Explain basic cellular architecture in detail.
17. (a) Explain the role of fiber optics communication in GSM. Or
 (b) Explain the architecture of GSM with neat block diagram.
18. (a) Explain in detail about Mobile Service Switching Center (MSC) Or
 (b) How is localization, location update, roaming etc done in GSM and reflected in the databases? Explain in detail.
19. (a) Explain base station controller in detail. Or
 (b) Explain the open system interconnection layers of GSM in detail.
20. (a) Explain OSS organization in detail.(Or)
 (b) Explain how network operation and maintenance is performed.

Second Semester - Computer Communications
ADVANCED NETWORKING

Time: Three hours

maximum: 75 marks

SECTION A (10 * 1 = 10 marks)

Choose the best answer

1. It provides the syntactic and semantic rules for communication
a) TCP b) IP c) both a) & b) d) none
2. This application allows users to send or receive a copy of a data file
a) File transfer b) www c) login d) none
3. The TCP/IP protocol that allows a computer to obtain its IP address from a server is known as
a) resolution protocol b) address resolution protocol
c) reverse address resolution protocol d) none
4. The process of dividing a datagram is known as
a) splitting b) fragmentation c) div datagram d) none
5. The value of PROTOCOL specifies the format of the _____ area
a) data b) database c) data management d) none

fill ups:

6. _____ uses routing information to forward datagrams
7. _____ is an error reporting mechanism
8. Each UDP message is called a user _____
9. _____ allows an arbitrary program to become a client
10. A _____ is enclosed in less than or greater than symbols

SECTION-B (5*5=25 marks)

11. a) Write note on “network technologies” **Or**
b) Write down the properties of the internet
12. a) Explain the addressing scheme and limited broadcast **Or**
b) Describe the resolution through direct mapping and dynamic binding
13. a) Explain the data structures and input processing **Or**
b) Describe the error and control messages.
14. a) Explain the format of UDP messages. **Or**
b) Describe the UDP encapsulation and protocol layering.
15. a) Explain the passing commands that control the remote side. **Or**
b) Write down the TELNET options with meaning.

SECTION – C (5* 8 = 40 marks)

16. a) Explain the following :
i) Internet architecture ii) Network – Level interconnections. **(Or)**
b) Describe the interconnections through IP Routers and user’s view
17. a) Discuss in detail about the client – server model of interaction. **(Or)**
b) Explain the transparent gateways and subnet addressing.
18. a) Describe with examples of routing table and routing algorithms. **(Or)**
b) Explain the autonomous systems and interior gateways protocols.
19. a) Describe the timers management and output processing. **(Or)**
b) Explain the finite state machine implementation and input processing.
20. a) Explain with an examples of the file transfer access. **(Or)**
b) Describe in detail about electronic mails.

Second Semester - UNIX NETWORK PROGRAMMING

Time : Three hours

Maximum : 75 marks

SECTION A (10 * 1 = 10 marks)

Fill up:

1. A unix _____ is a program that sits between an interactive user and the kernel
2. _____ is a connectionless protocol for user processes
3. _____ allows the process to notify the kernel that the specified descriptor is ready for I/O
4. the expansion for TLI is _____
5. the _____ program is one that sends an ICMP echo request message to a specified host and wait for reply

Choose the best answer

6. A dae-mon should execute _____ to reset the mask.
a) unmask (0) b) chmod (“/”) c) setgrp() d) none
7. An internet address encodes _____
a) a network ID b) a host ID c) both network ID and host ID d) none
8. A socket is affected by _____ system call.
a) setsockopt b)fcntl c)ioctl d) all of the above
9. _____ system calls use a flag o RSHIPRI to indicate priority messages.
a) poll b) get msg c) open d) write
10. Every packet used by TFTP begins with _____ op code.
a) 2 byte b) 3 byte c) 4 byte d) 5 byte

SECTION-B(5*5=25 marks)

11. a) Explain the differences between Advisory locking and mandatory locking Or
b) Explain the rules followed by FIFO for reading and writing.
12. a) Write short notes on Subnet Addresses. Or
b) Explain briefly about Sequenced Packet Protocol.
13. a) Write short notes on stream pipes. Or
b) What are the techniques available to handle the multiplexing of different I/O channels ?
14. a) Explain about I/O multiplexing in System V Transport Layer Interface. Or
b) Draw the block diagram of TLI function calls-connection oriented protocol.
15. a) Explain the passing commands that control the remote side. Or
b) Write down the TELNET options with meaning.

SECTION – C (5 *8 = 40 marks)

16. a) Explain signals generated by Unix in detail Or
b) Explain in detail about pipes used in unix.
17. a) Explain in detail about Net BIOS. Or
b) Explain about TCP/IP – Internet protocols in detail.
18. a) Explain in detail about advanced socket system calls Or
b) Explain any one system call in detail that affects a socket.
19. a) Explain in detail about any five elementary TLI functions. Or
b) Explain about streams in system V TLI briefly.
20. a) Explain in detail about TFTP Or
b) Explain about 4.3 BS rlogin processes in detail with block diagram.

Second semester - WEB SERVICES

Time: Three hours

Maximum: 75 marks

Answer ALL the questions.

SECTION A-(10 x 1 = 10 marks)

Fill up: (1-5)

1. Web services are simply a _____.
2. WSDL stands for _____.
3. _____ is for structuring data.
4. _____ is an interface language designed to be consumed by web services tool kits.
5. EPS.html is the first touch point for users accessing the _____ application.

Choose the correct answer (6-10)

6. Users will search through the registry for an appropriate web service that meets their needs.
 - (a) WSDL
 - (b) UDDI
 - (c) SOAP
 - (d) XML
7. The _____ activity allows workflow instance to call a synchronous or asynchronous operation on a remote web service.
 - (a) throw
 - (b) invoke
 - (c) compensate
 - (d) reply
8. We can run the EPS web application by simply typing the appropriate _____ into any browser.
 - (a) HTML
 - (b) URL
 - (c) EPS
 - (d) SOAP
9. SSL provides security between _____ servers.
 - (a) Three
 - (b) Two
 - (c) Four
 - (d) None of these
10. The protocols used to enable the sending and receipt of messages is called _____.
 - (a) Abstract interfaces
 - (b) Protocol bindings
 - (c) Services
 - (d) None of these

SECTION B-(5 x 5=25 marks)

11. (a) What are various categories of web service capabilities? Explain. Or
 - (a) Write short notes on : Attributes and namespaces.
12. (a) Write an XML example which uses the any element. Or
 - (b) What are SOAP fault codes ? Explain
13. (a) What WSDL doesn't do? Or
 - (b) What are the workflow management systems drawbacks?
14. (a) Write short notes on user interfaces. Or
 - (b) What are basic functionality of EPS application
15. (a) What are the objectives of web service management? Or
 - (b) Explain the free wares available for web services.

SECTION C – (5 x 8 = 40 marks)

16. (a) Explain the web application architecture in detail. Or
 - (b) Explain the relationships between SOAP, WSDL, and UDDI
17. (a) Explain the UDDI core data structure in detail. Or
 - (b) Explain the architecture of a generalized SOAP server.
18. (a) Write short notes on : Conversations. Or
 - (b) Write short notes on : Mobile and wireless services.
19. (a) Write short notes on: (i) Security (ii) Workflow. Or
 - (b) Explain how to implement an enterprise application that supports mobility and transactions
20. (a) Explain about the major platforms for developing web services. Or
 - (b) Explain the current standards and future trends of web services

Third Semester - DESIGN OF NETWORK OPERATING SYSTEMS

Time : Three hours

Maximum :75 Marks

Answer ALL the questions.
SECTION A – (10*1=10 marks)

1. What is NOS?
2. What are groupware packages?
3. Expand SQL
4. What is Host?
5. What is Gateway?
6. Expand SNA.
7. What is WAN?
8. What is API?
9. What is Client/server model?
10. Mention two types of access across the network.

SECTION B – (5*5=25 marks)

11. (a) Describe the principles of a NOS Or
(b) Write a note on OS/2..
12. (a) Mention the role of consultants in NOS solutions. Or
(b) Write t the sources of informations about NOS.
13. (a) Write a note on NOS support PCS. Or
(b) Write about the NOS support to interconnection of LANS..
14. (a) How NOSs relate to API?. Or
(b) Write about WIN32 API.
15. (a) Write about Network computing. Or
(b) Explain the NOS in Network computing.

SECTION C – (5*8=40 marks)

16. (a) Explain the following: (i) Netware collection (ii) LAN Server. Or
(b) Describe the following: i) UNIX. (ii) Key issues for users of NOSs.
17. (a) Describe in detail about supply channels and accessing suppliers Or
(b) Explain the sage mainland ver 4.0 and AppleTalk.
18. (a) Write about the approaches of vendors to interoperate standard protocols. Or
(b) Explain any two types of access across the network in detail.
19. (a) Explain about Data transport protocols and middleware. Or
(b) Explain the SQL and API and Novell Appware in detail.
20. (a) Write about the client/server model and its applications. Or
(b) Explain the Network operating system vendors and its case study.

Third Semester - FDDI AND ATM NETWORKS

Time : Three hours

Maximum : 75 marks

Answer ALL questions
SECTION A (10 * 1 = 10 marks)

1. What is FDDI?
2. What is attenuation?
3. What is UTP?
4. What is a composite cable?
5. Mention the use of DE bit.
6. What is DTE?
7. Mention the function physical medium sublayer.
8. Expand SONET.
9. What is the use of CLP bit?
10. Expand CCT.

SECTION-B(5*5=25 marks)

11. a) Write a note on FDDI network configuration. Or
b) Write about MIC for single mode fiber.
12. a) List out the EIA categories for UTP. Or
b) Write about FDDI monitor.
13. a) Describe the frame mode bearer services. Or
b) Describe the implicit congestion control.
14. a) Write short notes on B-ISDN standards. Or
b) Write a note on Videotex system..
15. a) List out the AAL services of ATM. Or
b) List out the real time services of ATM.

SECTION – C (5 *8 = 40 marks)

16. a) Describe in detail the need to get FDDI now.. Or
b) Describe the single mode fiber in detail.
17. a) Explain in detail about NEC. Or
b) Explain about FDDI monitor.
18. a) Explain about frame mode protocol architecture. Or
b) Describe the approaches in congestion control in Frame Relay.
19. a) Explain the interactive services of B-ISDN in detail Or
b) Explain about B-ISDN reference model.
20. a) Explain the ATM header format briefly. Or
b) Explain about the traffic management Framework.

Third Semester - C# AND THE .NET FRAMEWORK

Time : Three hours

Maximum : 75 marks

Answer ALL questions

SECTION A (10 * 1 = 10 marks)

1. What is CLR?
2. What is Intermediate language?
3. What is a custom control?.
4. What is a namespace?
5. Expand GDI.
6. What is the use of a page class?
7. What is the use of a propertygrid control?.
8. Mention any one method of data access.
9. What an assembly?
10. What are called threads?

SECTION-B(5*5=25 marks)

11. a) Write a note managed code. **(Or)**
b) Write about C++ extensions to C#.
12. a) Write note on ComboBox and ListBox. **(Or)**
b) Explain about Treevie control.
- 13.a) Write about Windows Forms. **(Or)**
b) Write about System.Drawing namespace.
14. a)Write about page class events . **(Or)**
b) Write short notes on HTML controls.
- 15.a) Write notes on assemblies. **(Or)**
b) Write about signing and versioning.

SECTION – C (5 *8 = 40 marks)

16. a) Write and explain the features of C#. **(Or)**
b) Explain how to create and run a C# program.
17. a) Explain in detail the preprocessor directives. **(Or)**
b) Explain about User interface components
18. a)Explain about the ADO.NET control in detail. **(Or)**
b) Explain about Graphics Class.
19. a) Explain about Page Directives. **(Or)**
b) Explain about Session Management in detail.
20. a) Explain about COM Interoperability . **(Or)**
b)Explain about threading in C#.

Second Semester - E.1 - HIGH SPEED NETWORKS

Time : Three hours

Maximum : 75 marks

Answer ALL questions

SECTION A (10 * 1 = 10 marks)

1. Expand URL.
2. What is a datagram?
3. Expand PDU.
4. What is cell loss ratio?
5. Expand MPLS
6. What is a mother wavelet?
7. What is the use of terminal adapter?
8. Expand LAPD?
9. What is bandwidth?
10. Define traffic.

SECTION-B (5*5=25 marks)

11. a) Explain the ATM protocol Architecture. **(Or)**
b) Explain about control signalling.
12. a) Describe the congestion control in packet switching networks.

Or

- b) Write a note on TCP congestion control..
- 13.a) List out the RED design goals. **(Or)**
b) List out the key characteristics of DS.
14. a)Write short notes ISDN address structure. **(Or)**
b) Explain about conversation services in B-ISDN.
- 15.a) Write a note on traffic performance. **(Or)**
b) Write a note on traffic management devices.

SECTION – C (5 *8 = 40 marks)

16. a) Describe the evolution of internetworking. **(Or)**
b) Describe the emergence of High Speed LANs.
17. a) Explain in detail about explicit congestion signaling.

Or

- b) Explain the need for flow and error control.
18. a)Explain the various ISA components. **(Or)**
b) Explain about Huffman code..
19. a) Explain the evolution of ISDN in detail. **(Or)**
b) Explain about transmission structure of ISDN.
20. a) Explain in detail about traffic characteristics.

Or

- b)Explain about the path selection briefly.

Second Semester - E.2 – NEURAL NETWORKS AND FUZZY SYSTEMS

Time : Three hours

Maximum : 75 marks

SECTION A (10 * 1 = 10 marks)

1. What is a neuron?
2. What is learning rate parameter?
3. Expand BAM.
4. Mention any one feature of Boltzman machine.
5. What is activation function?
6. What is an instar?
7. Give any one difference between ART1 and ART2.
8. Expand SOM.
9. What is spatiotemporal pattern?
10. What are 'S' cells?

SECTION-B(5*5=25 marks)

11. a) Write a note on Delta rule. Or
b) Write about EXOR problem with perceptron.
12. a) Write about Hamming network. Or
b) Explain about ART.
13. a) Write about Fuzzy relation. Or
b) Write about Fuzzy entropy.
14. a) Write short notes on Linguistic variables. Or
b) Write short notes on Transition matrix.
15. a) Write notes on Speech recognition. Or
b) Write about character recognition.

SECTION – C (5 *8= 40 marks)

16. a) Describe in detail the structure of neural networks. Or
b) Explain about the learning expressions in the back propagation network.
17. a) Explain in detail about Hopfield networks. Or
b) Explain about Neocognitron.
18. a) Explain about the Fuzzy operations in detail. Or
b) Explain about Fuzzy Compositions in detail.
19. a) Explain about measure of fuzziness. Or
b) Explain the concept of defuzzification.
20. a) Explain about the application of Fuzzy logic . Or
b) Explain about Fuzzy querying in Relational Database Model.

Second Semester - E.3 -MULTIMEDIA

Time : Three hours

Maximum :75 Marks

Answer ALL the questions.

SECTION A – (10*1=10 marks)

1. Where Multimedia applications are suitable?
2. Mention any two multimedia applicatiuons.
3. What are static elements in multimedia?
4. What are the non-temporal multimedia elements?
5. What is the purpose of digital ink?
6. Expand MPEG.
7. Expand AVI.
8. What is the use of Oriented Multimedia?
9. Mention any one multimedia framework available in market.
10. What is CD/i?

SECTION B – (5*5=25 marks)

11. (a) Explain any one multimedia application in brief.. Or
(b) Write about the elements of multimedia.
12. (a) Explain the usage of temporal elements in multimedia. Or
(b) Explain the usage of non temporal elements in multimedia..
13. (a) Write a note on lossy compression. Or
(b) Write about any compression technique suitable for streaming on web.
14. (a) Explain about MPEG standard. Or
(b) Write about components classes in multimedia framework..
15. (a) Discuss about CD family. Or
(b)Write about Multimedia in education.

SECTION C – (5*8=40 marks)

16. (a) Explain in detail about the multimedia platforms.. Or
(b) Explain the multimedia fundamental elements in detail.
17. (a) Explain the usage of transition in multimedia in detail. Or
(b)Explain the various media types for audio and video..
18. (a) Explain any four media type standards in detail. Or
(b)Discuss about the various audio formats in detail.
19. (a) Write about Multimedia framework Architecture in detail. Or
(b) Discuss about the usage of Object oriented Multimedia in CBT Development.
20. (a) Write and explain any two popular multimedia architectures and operations.. Or
(b) Write notes about :
 - (i) Multimedia edutainment..
 - (ii) Single user multimedia.

Second semester - E.4 - DATA MINING AND WAREHOUSING

Time : Three hours

Maximum : 75 marks

Answer ALL the questions - SECTION A- (10 * 1 = 10 marks)

1. Data mining methodology states that in the optional situation, data mining is an _____ process.
(a) ongoing (b) completed (c) starting (d) none of these.
2. Association rules are always defined on _____ attributes
(a) secondary (b) binary (c) all (d) none of these.
3. _____ is defined as the information that can be easily retrieved from databases using a query tool.
(a) Multi- dimensional knowledge (b) Deep knowledge (c) Shallow knowledge
(d) Hidden knowledge
4. OLTP stands for _____
(a) Online type processing (b) Online tape processing
(c) Online transaction processing (d) None of these.
5. Data bank on trade can be analyzed and converted into a data _____
(a) mining (b) mart (c) warehouse (d) none of these

Fill up : (6-10)

6. Replication techniques are used to load the information from the operational database to the data _____ .
7. Perceptions is one of the forms of _____.
8. A data mining environment needs extensive _____ facilities.
9. The _____ up process removes the deficiencies and loopholes in the data.
10. Data _____ can be built at central level, state level and also at district level.

SECTION B- (5 x 5 = 25 marks)

11. (a) Why there is a sudden rise of interest in data mining ? Explain. Or
(b) What is concept learning ? Explain.
- 12.. (a) Write short notes on OLAP tools. Or
(b) What are visualization techniques ? Explain
13. (a) Discuss the basic aspects of fuzzyfication of a the relational database model. Or
(b) Write short notes on cleaning.
14. (a) Compare OLTP with OLAP. Or
(b) Explain the characteristics of data warehouse.
15. (a) What are the tools data mining ? Explain. Or
(b) What are the areas for data warehousing and data mining for the Government?

SECTION C- (5 x 8 = 40 marks)

16. (a) What is a data warehouse and why do we need it ? Explain. Or
(b) What is learning? Explain.
17. (a) Explain various data mining techniques. Or
(b) Explain various stages of knowledge discovery process.
18. (a) Explain different forms of knowledge. Or
(b) Write down the rules for setting up a reliable data mining environment.
19. (a) Explain in detail about data marks. Or
(b) Explain in detail about the steps of data mining.
20. (a) Explain about GISTNIC warehouse. Or
(b) Explain about the data warehouse for the ministry of commerce.

Third Semester - E.5 – OPTICAL FIBER COMMUNICATION

Time : Three hours

Maximum : 75 marks

SECTION A (10 * 1 = 10 marks)

1. What is active fiber?
2. What is the representation of single fiber?
3. What is attenuation?
4. What is numerical aperture?
5. Expand PCM.
6. What is channel width?
7. What is the reason for insertion loss?
8. Expand BER.
9. What is the use of Optical Router?
10. What is laser phase noise?

SECTION-B(5*5=25 marks)

11. a) Write a note on types of fiber. Or
b) Write about step index fiber structure .
12. a) Write about core cladding lose. Or
b) Explain about mode coupling.
- 13.a) Write about equilibrium numerical aperture.. Or
b) Write about splicing techniques.
14. a)Write short notes on junction networks. Or
b) Write short notes on submerged systems.
- 15.a) Write notes on WDM. Or
b) Write about optical amp types.

SECTION – C (5 *8 = 40 marks)

16. a) Describe in detail about the mode theory of circular wave guides. Or
b) Describe the graded index fiber structure.
17. a) Explain in detail about signal distortion in optical wave guides. Or
b) Explain pulse broadening in graded index wave guides.
18. a)Explain about the launching schemes for coupling improvement imaging microspheres. Or
b) Describe the power coupling calculations.
19. a) Explain about fiber optic applications. Or
b) Explain the Military applications in detail.
20. a) Explain about Optical Amp. Or
b)Explain about mechanical and integrated optical switch.

Third Semester - E.6 - DISTRIBUTED COMPUTING

Time: Three Hours

Maximum: 75 marks

Answer ALL questions

SECTION A-(10 x 1= 10 marks)**Fill up (1-5)**

1. A network services that can provide a wide range of services including voice, tele text, fax is called _____.
2. A set of identical processing elements synchronized to perform the same instruction simultaneously is usually referred to as _____.
3. Resources are transmitted from the secondary to primary is termed as _____
4. Mutual lockout is also termed as _____.
5. The analysis of class conflicts using time-stamps involves two types of conflicts they are _____

Choose the correct answer. (6 -10)

6. The popularity of data flow system is due to
(a). Partitioning (b). Modular (c). Tight binding (d).All of these.
7. The characteristic of being able to function without knowledge of where the resource is being located is called
(a) Mounting (b) Idempotent (c) Location transparency (d) Name server
8. _____ technique is used to avoid over writing the actual data in secondary storage.
(a) Atomic transaction(b) Shadow page (c) Two-phase lock (d) Undo/Redo log.
9. In R* terminology views without associated authorization properties are called _____.
(a) Short hand views (b) Protection views (c) Glue site (d) None of these.
10. _____ deals with conversion of information between the forms of data different forms of data representation which can be used at different site.
(a) Application layer (b) Presentation layer (c) Session layer (d) Transport layer

SECTION B-(5 x 5=25 marks)

11. a) Indicate the significant features of ISDN technology. Or
(b)Write short note on client-server architecture.
12. (a) Describe simple authentication procedure for directory access. Or
(b) Explain lock-outs and the deadly embrace in a distributed database system.
13. (a) What is meant by serialized scheduling? Explain. Or
(b) Explain the TM/DM architecture of network (TM/DM).
14. (a) What is an atomic transaction? Discuss the use of the shadow page technique. Or
(b) Explain the use of the undo/redo log in the implementation of atomic transductions.
15. (a) Write about the components of a distributed database management systems. Or
(b) Explain mixed fragmentation principles of a distributed databases.

SECTION C -(5 x 8 = 40 marks)

16. (a) Compare and contrast dataflow and reduction machines. Or
(b) Name the seven layers in the ISO- OSI references model. Give a rationale for a layered approach.
17. (a) Write about X.500 services and ports. Or
(b) Explain strong authentication procedures for directory access with a neat diagram.
18. (a) Describe the pros and cons of leased line network. Or (b) Explain data flow systems.
19. (a) Describe the advantages and disadvantages of name server. Or
(b) What is idempotent request ? Explain.
20. (a) Explain the design of database fragmentation. Or
(b) Discuss the problems of heterogeneous distributed databases.

Third Semester - E.7 – REAL TIME SYSTEMS

Time : Three hours

Maximum : 75 marks

Answer ALL questions

SECTION A (10 * 1 = 10 marks)

1. What is throughput?
2. What is the use of procedure timer?
3. What is absolute deadline?
4. Expand EDF.
5. What is a kernel?
6. Mention the feature of Euclid.
7. Mention any one application of real time databases.
8. What is meant by consistent state?
9. Expand WDM.
10. Expand LTTT.

SECTION-B(5*5=25 marks)

11. a) Explain the task classes in Real time systems. Or
b) List out the factors affecting the estimation program run times.
12. a) Write and explain about utilization balancing algorithm. Or
b) Write about mode changes.
13. a) Describe the task dispatching policies. Or
b) Write a note on Flex.
14. a) Write short notes properties of transactions. Or
b) Explain the need for response time predictability.
15. a) Write a note on message delay. Or
b) Explain the features of network topologies.

SECTION – C (5 *8 = 40 marks)

16. a) Describe the structure of a Real time system. Or
b) Describe the properties of performance measures.
17. a) Explain in detail about Uniprocessor scheduling. Or
b) Explain about Fault tolerant scheduling..
18. a) Explain about packages briefly. Or
b) Explain about runtime error handling.
19. a) Explain about main memory databases. Or
b) Explain about databases for hard real time systems.
20. a) Explain in detail about communication media. Or
b) Explain about the network architecture issues.

Third Semester - E.8 - MASTERING LAN AND TROUBLESHOOTING

Time : Three hours

Maximum : 75 marks

Answer ALL questions
SECTION A (10 * 1 = 10 marks)

1. Modern PC are called as _____ systems.
2. Expand OEM.
3. Width of _____ bus determine the memory access capacity.
4. What is a clock frequency?
5. What is form factor?
6. What is CNR connector?
7. Expand RDRAM.
8. What is meant by UMA?
9. What is meant by CD-R?
10. What is POST?

SECTION-B(5*5=25 marks)

11. a) List out the names of sources to update the latest information about PC. Or
b) List out the Hand-Tools in PC maintenance.
12. a) What is MMX technology? Or
b) Write about CPU operating voltages..
13. a) Describe the various inter chip set models. Or
b) Describe the various interrupts in 8-bit ISA bus.
14. a) Write short notes on cache memory.. Or
b) Explain about conventional and Extended memory.
15. a) List out the components of a CD-ROM drives. Or
b) Explain the various DVD standards and speeds.

SECTION – C (5 *8 = 40 marks)

16. a) Describe the various components and peripherals to assemble a modern PC system. Or
b) Describe the different phases in Windows 9x boot process.
17. a) Explain in detail about Sockets and Heat Sinks. Or
b) Explain about Pentium-III processor.
18. a) Explain the various components in a motherboard Or
b) Describe the (i) USB BUS Architecture (II) EISA BUS Architecture..
19. a) Explain the different kinds of logical memory installed in a PC. Or
b) Explain about DRAM technology.
20. a) Explain in detail about CD-ROM specification. Or
b) Explain about the different kinds of CD-ROM formats.