

Unit 1: Networking and Open Standards 10 Marks

Computer Networking:

Session 1,2 with practice

- Networking: a brief overview;
- Communication Media: Wired Technologies – Co-Axial, Ethernet Cable, Optical Fiber; Wireless Technologies – Blue Tooth, Infrared, Microwave, Radio Link, Satellite Link;
- Network Devices: Hub, Switch, Repeater, Gateway – and their functions;
- Types of network: LAN, MAN, WAN, PAN;

Session 3,4 with practice

- Network Topologies: Star, Bus, Tree;
- Network Protocols: HTTP, TCP/IP, PPP;
- Identifying computers and users over a network: Basic concept of domain name, MAC (Media Access Control), and IP Address, domain name resolution;
- Network security: denial of service, intrusion problems, snooping;

Session 5,6 with practice

- Internet Applications: SMS, Voice Mail, Electronic Mail, Chat, Video Conferencing;
- Wireless/Mobile Communication: GSM, CDMA, WLL, 3G, 4G;
- Network Security Concepts: Cyber Law, Firewall, Cookies, Hackers and Crackers.

Open Source Concepts:

Session 7,8 with practice:

- Open Source Software (OSS), common FOSS/FLOSS examples (e.g., GNU/Linux, Firefox, OpenOffice, Java, Netbeans, MySQL), common open standards (WWW, HTML, XML, ODF, TCP, IP).
- Indian Language Computing: character encoding, UNICODE, different types of fonts (open type vs true type, static vs dynamic), Entering Indian Language Text – phonetic and key map based.

Unit 2: Programming 25 Marks

Review of Class XI;

Session 9,10 with practice

Programming Fundamentals

(Refer to Appendix A for Swing Control Methods & Properties, and Appendix B for sample guidelines of GUI Programming)

- Basic concept of Access specifier for class members (data members and methods).
- Basic concept of Inheritance.

Commonly used libraries:

- String class and methods: toString(), concat(), length(), toLowerCase(), toUpperCase(), trim(), substring()
- Math class methods: pow(), round()

Session 11,12 with practice

- Accessing MySQL database using ODBC/JDBC to connect with database.
- Web application development: URL, Web Server, Communicating with the web server, concept of Client and Server Side.
- HTML based web pages covering basic tags – HTML, TITLE, BODY, H1..H6, Paragraph (P), Line Break (BR), Section Separator (HR), FONT, TABLE, LIST (UL, OL), FORM.
- Creating and accessing static pages using HTML and introduction to XML.

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Session 13,14 with practice

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Unit 3: Relational Database Management System 30 Marks

Session 15,16 with practice

Review of RDBMS from Class XI

Database Fundamentals

- Concept of Database Transaction, Committing and revoking a Transaction using COMMIT and ROLLBACK.
- Grouping Records: GROUP BY, Group functions – MAX(), MIN(), AVG(), SUM(), COUNT(); using COUNT(*), DISTINCT clause with COUNT; Group Functions and Null Values.
- Displaying Data From Multiple Tables: Cartesian product, Union, concept of Foreign Key, Equi-Join
- Creating a Table with PRIMARY KEY and NOT NULL constraints, Viewing Constraints, Viewing the Columns Associated with Constraints using DESC command.
- ALTER TABLE for
 - deleting column(s), modifying data type(s) of column(s),
 - adding a constraint, enabling constraints, dropping constraints.
- DROP Table for deleting a table

Unit 4: IT Applications 05 Marks

Session 17,18 with practice

- Front-end Interface: Introduction; content and features; identifying and using appropriate component
(Text Box, Radio Button, CheckBox, List, etc., as learnt in Unit 2 (Programming)) for data entry, validation and display.
- Back-end Database: Introduction and its purpose, exploring the requirement of tables and its essential attributes.
 - Front-End and Database Connectivity: Introduction, requirement and benefits
 - Demonstration and development of E-learning, ICT examples.

