

R.E. Society's
Gogate Jogalekar College, Ratnagiri
Department of Mathematics

Class:

T. Y. B. Com.

Semester:

V

Paper:

Ability Enhancement Courses

Nomenclature:

Computer System & Applications

Unit I: Data Communication, Networking and Internet

- a) Data Communication Component, Data representation, Distributed processing. (Concepts only)**
- b) Network Basics and Infrastructure**
 - Definition, Types (LAN, MAN, WAN) Advantages.
 - Network Structures – Server Based, Client server, Peer to Peer.
 - Topologies – Star, Bus, Ring.
 - Network Media, Wired – Twisted Pair, Co-axial, Fiber Optic and Wireless – Radio and Infrared.
 - Network Hardware: Hubs, Bridges, Switches, Routers.
 - Network Protocols – TCP/IP, OSI Model.
- c) Internet**
 - Definition, Types of connections, sharing internet connection, Hot Spots.
 - Services on net- WWW, Email-Blogs.
 - IP addresses, Domain names, URLs, Hyperlinks, Web Browsers
 - Searching Directories, Search engines, Boolean search (AND, OR, NOT), Advanced search, Meta Search Engines.
 - Email – POP/SMTP accounts in Email, Different parts of an Email address. Receiving and sending emails with attachments by scanning attachments for viruses.
 - Cyber Crime, Hacking, Sniffing, Spoofing

Unit II: Database and MySQL

- a) **Introduction** :To Databases, Relational and Non-relational database system MySQL as a Non-procedural Language. View of data.
- b) **MySQL Basics** :Statements (Schema Statements, Data statements, Transaction statements), names (table & column names), data types (Char, Varchar, Text, Mediumtext, Longtext, Smallint, Bigint, Boolean, Decimal, Float, Double, Date, Date Time, Timestamp, Year, Time), Creating Database, inserting data, Updating data, Deleting data, expressions, built-in-functions – lower, upper, reverse length, ltrim, rtrim, trim, left, right, mid, concat, now, time, date, curdate, day, month, year, dayname, monthname, abs, pow, mod, round, sqrt missing data(NULL and NOT NULL DEFAULT values) CREATE,USE, ALTER (Add, Remove, Change columns), RENAME, SHOW, DESCRIBE (CREATE TABLE, COLUMNS, STATUS and DATABASES only) and DROP (TABLE, COLUMN, DATABASES statements), PRIMARY KEY FOREIGN KEY (One and more columns) Simple Validity checking using CONSTRAINTS.

Unit II: Database and MySQL

- a) MySQL Simple queries :** The SELECT statement (From, Where, Group By, Having, Order By, Distinct, Filtering Data by using conditions. Simple and complex conditions using logical, arithmetic and relational operators (=, !=, <, >, <>, AND, OR, NOT, LIKE) Aggregate Functions – count, sum, avg, max, min.
- b) Multi-table queries:** Simple joins (INNER JOIN), SQL considerations for multi table queries (table aliases, qualified column names, all column selections self joins).
- c) Nested Queries (Only up to two levels) :** Using sub queries, sub query search conditions, sub queries & joins, nested sub queries, correlated sub queries, sub queries in the HAVING clause.
Simple Transaction illustrating START, COMMIT, and ROLLBACK.

Unit III: Spread sheet

a) **Creating and Navigating worksheets and adding information to worksheets**

- Types of data, entering different types of data such as texts, numbers, dates, functions.
- Quick way to add data Auto complete, Autocorrect, Auto fill, Auto fit. Undo and Redo.
- Moving data, contiguous and non contiguous selections, Selecting with keyboard. Cut-Copy, Paste. Adding and moving columns or rows. Inserting columns and rows.
- Find and replace values. Spell check.
- Formatting cells, Numbers, Date, Times, Font, Colors, Borders, Fills.

b) **Multiple Spreadsheets**

- Adding, removing, hiding and renaming worksheets.
- Add headers/Footers to a Workbook. Page breaks, preview.
- Creating formulas, inserting functions, cell references, Absolute, Relative (within a worksheet, other worksheets and other workbooks).

c) **Functions**

- Financial functions: FV, PV, PMT, PPMT, IPMT, NPER, RATE
- Mathematical and statistical functions. ROUND, ROUNDDOWN, ROUNDUP, CEILING, FLOOR, INT, MAX, MIN, MOD, SQRT, ABS, SUM, COUNT, AVERAGE

d) **Data Analysis**

- Sorting, Subtotal.
- Pivot Tables- Building Pivot Tables, Pivot Table regions, Rearranging Pivot Table.

Reference Book

- *Data Communication and Networking -Behrouz A Forouzan*
- *Introduction to Computers – Peter Norton, Tata McGraw Hill*
- *Fundamentals of Database Systems - Elmasri Navathe, Somayajulu, Gupta*
- *Database Systems and Concepts - Henry F. Korth, Silberschatz, Sudarshan McGraw Hill*
- *DBMS - Date*
- *The complete reference SQL - Vikram Vaswani TMH*
- *The complete reference SQL - James R. Groff & Paul N. Weinberg TMG*
- *Learning SQL - Alan Beaulieu O'REILLY.*
- *Learning MySQL - Seyed M. M. and Hugh Williams, O'REILLY.*
- *SQL a complete reference - Alexis Leon & Mathews Leon TMG*