

SCHEME OF MARKS [BA/BCOM/BSC]-CA- II YEAR

Papers	Duration	Internal			Theory	Total	Practical	Grand Total
		Three Months	Six Months	Total				
Paper-I	Object Oriented Programming (C++) & Conceptual Operating System	10	10	20	40	80	50	150
Paper- II					40			

B.A./B.Com/B.Sc. – II Year
Subject- Computer Application
Paper-I

Object Oriented Programming (C++) & Conceptual Operating System

Max Marks: 40

Min Marks: 13

UNIT-I

Introduction to C++: Key concepts of Object-Oriented Programming, Advantages of OOP's. Input and Output in C++, Parts of C++ Program, Keywords, Identifiers, Data types, Constants, Operators, Scope resolution operator. **Control Structures:** Decision Making Statements, Looping Statements, Type casting.

UNIT-II

Functions: Basics of functions, inline functions, function overloading, library functions. **Classes and objects:** declaring classes & objects, Access Specifiers - Public, Private & Protected, Defining member functions - inside, outside the class, friend function.

UNIT-III

Constructors and Destructors: Characteristics, constructors with arguments, Overloading constructors, types of constructors. **Operator overloading:** Concepts and usage, **Inheritance:** Types of inheritances. Polymorphism and its types.

UNIT-IV

Introduction –functions & types of operating systems - operating system s structures, system calls and system programs. **Process management** - Process concepts - process scheduling - operation on process, Inter process communication, CPU scheduling - scheduling algorithms – process synchronization- Classic Problems of synchronization - Deadlocks.

UNIT-V

Memory Management - Single and multiple partitioned allocations - paging - Segmentation - Virtual Memory Management - Demand paging and Page Replacement Algorithms. **File Management** - File concept- Access methods - Directory structure - Allocation methods - freespace management - disk scheduling.

Text books:

Object-Oriented Programming with ANSI & Turbo C++ Ashok N. Kamthane. Balagurusamy: Object Oriented Programming in C++ Abraham Silberschatz and P. B. Galvin - Operating system concepts - Addison Wesley Publication.

Reference Books:

Herbert Schlitz: C++ the complete Reference- TMH publication.
R. Lafore: Object oriented programming in C++

B.A./B.Com/B.Sc. – II Year
Subject- Computer Application
Paper-II

Computer Networks & Relational Database Management System

Max Marks: 40

Min Marks: 13

UNIT-I

Introduction to Networks, Types of Networks- Server based, Peer, Hybrid, Network Topology- Bus, Star, Ring, Mesh, Network Protocols- Hardware Protocols, Software Protocols, OSI, TCP/IP model, Comparison between OSI and TCP/IP. Communication Media. Wired & Wireless Technology (Bluetooth, Infrared).

UNIT-II

Networking Technologies- Fiber Channel, ATM, Network Connectivity- Hubs, Bridges, Repeaters, Multiplexers, Internet Connectivity- Routers, Gateways, CSUs and DSUs. **Overview of Internet:** Internet and TCP/IP, Internet addressing, Concepts of ISP, Concept of URL addresses, Internet protocols, FTP, NNTP, Email, SMTP. **Internet Security-** Internet Security Issues, firewall, Data Encryption, Digital Signatures.

UNIT-III

Introduction to Database: Purpose of Database, Database System Structure **Entity Relationship Model:** Entity, Entity Set, Attributes (Simple, Composite, Single Valued, Multi Values, Null, Derived), Mapping Constraints (Mapping Cardinality), Keys (Candidate Key, Super Key, Primary Key), Entity-Relation (E-R) Diagrams. **Relational Model:** Basic Structure (Domain, Tuple, Relation). **Relational Database Design:** Pitfalls – Normalization, Functional Dependencies, First Normal Form, Second Normal Form, Third Normal, BCNF.

UNIT-IV

Structured Query Language: Oracle Data Type (Number, Char, Varchar2, Date), Operators (Arithmetic, Logical, Concatenation), **SQL Commands:** DDL (Create, Alter, Drop, Rename), DML (Insert, Update, Delete, Select), DCL (Rollback, Commit) **Constraints:** Column level, Table Level Constraints, Constraints (Unique Key, Primary Key, Check, Not Null, Foreign). Range Searching (IN, BETWEEN, NOT IN, NOT BETWEEN) , Pattern Matching (Like Operator). **Single Row Function:** Number Function: (Abs, Ceil, Floor, Round, Trunc, Power, Sign, Sqrt). **Character Function:** ASCII, CHR, Concat, Initcap, Substr, Length, Lower, LPAD, RPAD, Ltrim, Rtrim, Upper.

UNIT-V

Date Function: Add_months, Last_day, months_between, sysdate, next_day. **Group Function:** Group by Clause, Having Clause, Avg, Count, Max, Min, Sum. **Joins:**, Type of Join (Natural Join, Self Join) . Views. **Introduction to PL/SQL:** PL/SQL Block, PL/SQL Data Type, (Number, Char, Varchar2, Date), Comments, Serveroutput Command, Dbms_output.put_line Function, Conditional Control (IF statement), Iterative Statement (For Statement, Loop, While), Cursor, Function, Procedure, Triggers.

Text Books:

1. Abraham Silberschatz and P. B. Galvin - Operating system concepts – Addison Wesley Publication.
2. Data Base System Concepts- Abraham Silbershultz, Henry Korth, S. Sudershan (ISBN-0071148108)
3. Ivan Bayross, “SQL, PL/SQL”, BPB Publications”

Reference Books:

1. Liebschuty, “The Oracle Cook Book”, BPB Publication Michael Abbey, Michael J. Corey,
2. “Oracle A Beginners Guide”. TMH Publication Oracle Unleashed (Chapter 1,2,3,4,5 and 9)