DEGREE OF BACHELOR OF SCIENCE

CHOICE BASED CREDIT SYSTEM

Syllabus for

B. SC. COMPUTER SCIENCE

(SEMESTER PATTERN)

(For Candidates admitted in the Colleges affiliated to Periyar University from 2017 - 2018 onwards)
1. ELIGIBILITY FOR ADMISSION

A candidate who has passed in Higher Secondary Examination with Mathematics or Business Mathematics or Computer Science or Statistics (Academic stream or Vocational stream) as one of the subject under Higher Secondary Board of Examination, Tamilnadu as per norms set by the Government of Tamilnadu or an Examination accepted as equivalent there to by the syndicate, subject to such conditions as may be prescribed there to are permitted to appear and qualify for the Bachelor of Science in Computer Science degree examination of this university after a course of study of three academic years.

2. DURATION OF THE COURSE

The course shall extend over a period of three years comprising of six semesters with two semesters in one academic year. There shall not be less than 90 working days for each semester. Examination shall be conducted at the end of every semester for the respective subjects.

3. COURSE OF STUDY

The course of study shall comprise instruction in the following subjects according to the syllabus and books prescribed from time to time. The syllabus for various subjects shall be clearly demarcated into five units in each subject. Part -I, Part-II, Part – III, Part – IV and Part-V subjects are as prescribed in the scheme of examination.

4. EXAMINATIONS

The theory examination shall be three hour duration for each paper at the end of every semester. The candidate failing in any subject(s) will be permitted to appear in the subsequent examination. The practical examinations for core subjects should be conducted at the end of the every semester.

4. (a) Submission of record note books for practical examinations

Candidates appearing for practical examinations should submit bonafide Record Note Books prescribed for practical examinations, otherwise the candidates will not be permitted to appear for the practical examinations. However, in genuine cases where the students who could not submit the record note books, they may be permitted to appear for the practical examinations, provided the concerned Head of the Department certified that the candidate has performed the experiments prescribed for the course. For such candidates zero (0) marks will be awarded for record note books.

5. Revision of Regulations and Curriculum

The University may revise/amend/ change the Regulations and Scheme of Examinations, if found necessary.
6. (a) Passing Minimum – Theory

The candidate shall be declared to have passed the examination if the candidate secure not less than 40 marks put together out of 100 marks (CIA + EA). Minimum 40% should be secured (30 out of 75) in EA of each theory subject.

6. (b) Passing Minimum – Practical

The candidate shall be declared to have passed the examination if the candidate secure not less than 40 marks put together out of 100 marks (CIA + EA). Minimum 40% should be secured (24 out of 60) in EA of each Practical subject.

7. Marks Distribution and Question Paper Pattern for B.Sc., CS

7.1 Theory – Marks Distribution

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**PART – A (10 x 2 = 20 Marks)**

(Answer ALL questions), (Two questions from each unit)

**PART – B (5 x 5 = 25 Marks)**

(Answer ALL questions) & (One question from each unit with Internal Choice)

**PART – C (3 x 10 = 30 Marks)**

(Answer ANY THREE questions) & (Open Choice – 3 out of 5 questions)

7.1 (b). Theory - Internal Marks Distribution (Total Marks: 25)

- Attendance : 5 Marks
- Assignment : 5 Marks
- Test : 15 Marks

7.2. Practical – Marks Distribution

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7.2 (a). Practical - External Marks Distribution (Total Marks: 60)

For each practical question the marks should be awarded as follows (External)

i) Algorithm / Flowchart - 20%
ii) Writing the program in the main answer book - 30%
iii) Test and debug the program - 30%
iv) Display the correct output - 20%

(Marks may be proportionately reduced for the errors committed in each of the above)

Practical Question Paper Pattern

➢ Student should attend two questions (either or pattern)

Note:

(i) Practical I to Practical VI and SBEC Practical has same pattern
(ii) Core Practical Examination must be conducted at the end of every Semester

7.2 (b). Practical - Internal Marks Distribution (Total Marks: 40)

- Record : 15 Marks
- Internal Practical examinations : 25 Marks

8. COMMENCEMENT OF THIS REGULATION:

These regulations shall take effect from the academic year 2017-2018, i.e, for students who are to be admitted to the first year of the course during the academic year 2017-18 and thereafter.
### B Sc COMPUTER SCIENCE

#### Scheme of Examinations from the Academic Year 2017-2018

Credit Distribution as per the University Norms.

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Practical Examination should be conducted in the same semester
## ELECTIVE SUBJECTS

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## SBEC – Skill Based Elective Courses

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Non Major Elective Course – (NMEC)

Extra Disciplinary Subjects offered by the Department of Computer Science

The department can offer any one of the subjects to the other major subject students in each semester.

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Allied Subjects for any Degree offered by the Department of Computer Science

SYLLABUS - CBCS PATTERN
EFFECTIVE FROM THE ACADEMIC YEAR 2017-2018

All Papers should be handled and valued by Computer Science Department only. For University practical examinations both Internal and External examiners should be appointed from Computer Science Department.

FIRST OPTION (Allied Computer Science)

First Year / Second Year (Select any one of the Subject with Practical)

SBEC – Skill Based Elective Courses

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## SECOND OPTION (Allied Computer Science)

First Year / Second Year (Select any one of the Subject with Practical)

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## THIRD OPTION (Allied Computer Science)

First Year / Second Year (Select any one of the Subject with Practical)

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### FOURTH OPTION (Allied Computer Science)

**First Year / Second Year (Select any one of the Subject with Practical)**

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**Allied Papers for B.Sc. Computer Science offered by other Departments**

**I - YEAR / II YEAR (Allied I / II - Mathematics Group -I)**

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## B Sc COMPUTER SCIENCE

### I - YEAR / II YEAR (Allied I / II : MATHEMATICS GROUP - II)

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</tr>
</tbody>
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**PERIYAR UNIVERSITY**

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15
B. Sc. COMPUTER SCIENCE

SEMESTER I

CORE I - DIGITAL COMPUTER FUNDAMENTALS AND MICROPROCESSOR

UNIT - I

UNIT - II

UNIT - III
Interconnecting Gates: Sum of Products (SOP) and Products of Sums (POS) - Derivation of products of sums expressions - Derivation of three Input variable expression - NAND gates and NOR gates - The Map method for simplifying expressions - Sub cube and covering - product of sums expressions - Don't cares.

UNIT - IV

UNIT - V
Programming the 8085: Introduction to 8085 Instructions - Code conversion: BCD to Binary conversion - Binary to BCD conversion - BCD to seven segment LED code conversion - Binary to ASCII and ASCII to binary code conversion - BCD addition - BCD subtraction.

TEXT BOOKS:

REFERENCE BOOKS:
B.Sc. COMPUTER SCIENCE
SEMESTER I
CORE PRACTICAL I - ASSEMBLY LANGUAGE PROGRAMMING

1. Perform 8-bit addition using 8085 Microprocessor.
2. Perform 8-bit subtraction using 8085 Microprocessor.
3. Perform 8-bit multiplication using 8085 Microprocessor.
4. Perform 8-bit division using 8085 Microprocessor.
5. Arrange the given numbers in ascending order.
6. Find the largest number in the given set.
7. Convert HEX number to Decimal number.
8. Convert Decimal number to Binary.
9. Convert Decimal Number to BCD.
UNIT – I
Overview of C: History of C - Importance of C - Basic structure of C programs. Constants, variables and data types: Character set - C Tokens - Keywords and identifiers - Constants - Variables - Data types - Declaration of variables - Declaration of storage classes - Assigning values to variables - Defining symbolic constants. Operators and expression: Types of Operators - Arithmetic Expressions - Evaluation of expressions - Precedence of arithmetic operators - Type conversions in expressions - Operator precedence and associativity. Managing input and output operations: Reading and writing a character - Formatted input and output.

UNIT – II

UNIT – III
Character arrays and strings: Introduction - Declaring and initializing string variables - Reading strings from terminal - Writing strings to screen - String handling functions - Table of strings. User-Defined functions: Introduction - Need for user-Defined function - A Multi- function program - Elements of user-Defined function - Definition of functions - Return values and their types - Function calls - Function declaration - All category of functions - Nesting of functions - Recursion - Passing arrays to functions - Passing strings to function.

UNIT – IV
Structures and Unions: Introduction - Defining a structure - Declaring structure variables - Accessing structure members - Structure initialization - Copying and comparing structure variables - Arrays of structures - Arrays within structures - Structures within structures - Structures and functions - Unions - Size of structures - Bit fields. Pointers: Introduction - Understanding pointers - Accessing the address of a variable - Initializing of pointer variables. Chain of pointers - Pointer expressions - Pointers and arrays - Pointers and character strings - Arrays of pointers - Pointers as function arguments - Functions returning pointers - Pointers to functions - Pointer and structures.

UNIT – V
File Management: Introduction - Defining and opening a file - Closing a file - Input/Output operation on files - Error handling during I/O operations - Random access files - Command line arguments.

TEXT BOOKS

REFERENCE BOOK:
B.Sc. COMPUTER SCIENCE
SEMESTER II
CORE PRACTICAL II - PROGRAMMING IN C

1. Write a program to find the sum, average, standard deviation for a given set of numbers.

2. Write a program to print prime numbers up to a given number.

3. Write a program to convert a decimal number into binary.

4. Write a program to multiply two matrices using functions.

5. Calculate the binomial co-efficient using functions.

6. Write a program to check whether a given word is a palindrome or not.

7. Implement binary search to find a particular name in a list of names.

8. Arrange a set of numbers in ascending order.

9. Write a program to print the Student's Mark sheet assuming Register number, name, and marks in 5 subjects in a Structure. Create an array of Structures and print the mark sheet in the university pattern.

10. Write a program to count the number of alphabets, special characters and words in a line of text using file.
B. Sc. COMPUTER SCIENCE

SEMESTER III

CORE III - OBJECT ORIENTED PROGRAMMING WITH C++

UNIT-I

UNIT-II
Functions: Prototyping - Call by Reference - Return by Reference - Inline Functions - Default Arguments - const Arguments - Function Overloading - Friend and Virtual Functions, Classes and Objects - Class - Member Functions - Arrays with in a Class - Memory Allocation for Objects - Static data members - Static member functions - Arrays of Objects - Objects as Function Arguments - Friendly Functions - Returning Objects - const Member Functions - Pointers to Members, Constructors and Destructors.

UNIT-III

UNIT-IV

UNIT-V
Templates: Class Templates - Class Templates with Multiple Parameters - Function Templates - Function Templates with Multiple Parameters - Overloading of Template Functions - Member Function Templates - Non-Type Template Arguments. Exception Handling: Basics - Exception Handling Mechanism - Throwing Mechanism - Catching Mechanism - Rethrowing an Exception - Specifying Exceptions.

TEXT BOOK

REFERENCE BOOKS
B.Sc. COMPUTER SCIENCE
SEMMESTER III
CORE IV - DATA STRUCTURES AND ALGORITHMS

UNIT -I
Algorithms (Analysis and design): Problem solving - Top-Down and Bottom-up approaches to algorithm design - Use of algorithms in problem solving - Design, Implementation, Verification of algorithm - Efficiency analysis of algorithms: Space, Time complexity, and Frequency count - Sample algorithms: Exchange the value of two variables - Summation of set of numbers - Decimal to Binary conversion - Sorting - Factorial - Fibonacci - Finding a largest Number in an array - Reverse the order of elements in array.

UNIT - II

UNIT - III

UNIT -IV

UNIT - V

TEXTBOOKS

REFERENCE BOOKS
1. Write a C++ program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write member functions ADD(), SUB(), MUL(), DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.

2. Write a C++ program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT.

3. Write a C++ program to create a class STRING. Write a Member Function to initialize, get and display strings. Overload the operators ++ and == to concatenate two Strings and to compare two strings respectively.

4. Write a C++ program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.

5. Write a C++ program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGLE from class Shape and Calculate Area and Perimeter of each class separately and display the result.

6. Write a C++ program using function overloading to read two matrices of different data types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.

7. Write a program to convert an Infix Expression to Postfix Expression using arrays.

8. Write a C++ program to create a class to implement the data structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element. Check for overflow and underflow conditions.

9. Write a C++ program to check whether the given string is a palindrome or not using pointers.

10. Write a C++ program to merge two files into a single file
B.Sc. COMPUTER SCIENCE

SEMESTER IV

CORE V - RELATIONAL DATABASE MANAGEMENT SYSTEMS

UNIT - I

Introduction: Database System Applications-DBMS Vs. File System - View of Data-Data Model-
Database Languages - Database users and Administrators - Transaction Management - Database System
Structure - Application Architecture. Data Models: Basic Concepts - Constraint- Keys- ER Diagram -
Weak Entity - Extended ER Features - Design of an ER Schema - UML; Relational Model: Structure of
Relational Databases - Relational Algebra - Views.

UNIT - II

SQL: Background-Basic Structure-Set Operation-Aggregate Function-Null Values-Nested Sub Queries
- Views - Modification of the Database - Data Definition Language - Embedded SQL - Dynamic SQL.

UNIT-III

Advance SQL : Integrity and Security: Domain - Constraint - Referential Integrity - assertions - Triggers

UNIT - IV

Relational Database Design: First Normal Form - Pitfalls in Relational Database Design-Functional
Dependencies (Second Normal Form) - Boyce-Codd Normal Form - Third Normal Form - Fourth
Normal Form - Overall Database Design Process.

UNIT-V

Transaction Management: Transaction concepts - States - Serializability. Lock based concurrency
control : Locks - Granting - Two-Phase Locking protocol. Time stamp based protocol: Timestamps -
Timestamp ordering protocol - Dead lock handling.

TEXT BOOK

2005.

REFERENCE BOOKS

2014.
B.Sc. COMPUTER SCIENCE
SEMESTER IV
CORE PRACTICAL IV - RDBMS

1. Use DDL-create and DML-insert commands
   (i) Create tables according to the following definition.
       Deposit (actno varchar2(5), cname varchar2(18), bname varchar2(18), amount number(8,2), adate date);
       Branch(bname varchar2(18), city varchar2(18));
       Customers(cname varchar2(19), city varchar2(18));
       create table borrow(loanno varchar2(5), cname varchar2(18), bname varchar2(18), amount number (8,2));
   (ii) Insert the data for the above relations.
   (iii) From the above given tables perform the following queries:
     a) Describe deposit, branch.
     b) Describe borrow, customers.
     c) List all data from table DEPOSIT.
     d) List all data from table BORROW.
     e) List all data from table CUSTOMERS.
     f) List all data from table BRANCH.
     g) Give account no and amount of depositors.
     h) Give name of depositors having amount greater than 4000.
     i) Give name of customers who opened account after date '1-12-96'.

2. Create the below given table and insert the data accordingly.
   Create Table Job (job_id, job_title, min_sal, max_sal)
   Create table Employee (emp_no, emp_name, emp_sal, emp_comm, dept_no)
   Create table deposit(a_no, cname, bname, amount, a_date).
   Create table borrow(loanno, cname, bname, amount).
   Perform following queries
     a) Retrieve all data from employee, jobs and deposit.
     b) Give details of account no. and deposited rupees of customers having account opened between
        dates 01-01-06 and 25-07-06.
     c) Display all jobs with minimum salary is greater than 4000.
     d) Display name and salary of employee whose department no is 20. Give alias name to name of
        employee.
     e) Display employee no, name and department details of those employee whose department lies
        in(10,20)

3. Use various options of LIKE predicate
   a) Display all employee whose name start with 'A' and third character is 'a'.
   b) Display name, number and salary of those employees whose name is 5 characters long and first
three characters are 'Ani'.
c) Display the non-null values of employees and also employee name second character should be 'n' and string should be 5 character long.
d) Display the null values of employee and also employee name's third character should be 'a'.
e) What will be output if you are giving LIKE predicate as '%\_%' ESCAPE '\'

4. Perform various data manipulation commands, aggregate functions and sorting concept on all created tables
   a) List total deposit from deposit.
   b) List total loan from a particular branch
   c) Count total number of customers
   d) Count total number of customer's cities.
   e) Create table supplier from employee with all the columns.
   f) Create table sup1 from employee with first two columns.
   g) Delete all the rows from sup1.
   h) Delete the detail of supplier whose sup_no is 103.
   i) Update the value dept_no to 10 where second character of emp. name is 'm'

5. Write a PL/SQL code block that will accept an account number from the user and debit an amount of Rs. 2000 from the account if the account has a minimum balance of 500 after the amount is debited. The Process is to fired on the Accounts table.

6. Write a PL/SQL code block to calculate the area of the circle for a value of radius varying from 3 to 7. Store the radius and the corresponding values of calculated area in a table Areas. Areas – radius, area.

7. Write a PL/SQL block of code for reversing a number. (Example : 1234 as 4321).

8. Create a transparent audit system for a table Client_master (client_no, name, address, Bal_due). The system must keep track of the records that are being deleted or updated. The functionality being when a record is deleted or modified the original record details and the date of operation are stored in the auditclient(client_no, name, bal_due, operation, userid, opdate) table, then the delete or update is allowed to go through.

9. Implement a GUI based database application for BANK Database to support the following:
   - Insertion of new customers, accounts
   - Deletion of customers, accounts
   - Withdrawal and deposit of amount

10. Implement a GUI based database application for Bus Reservation database to support the following.
    - Insert the details of Passenger and Bus
    - Delete the details of Passenger and Bus
    - Passenger Ticket Booking.
UNIT - I

UNIT - II

UNIT - III
Menus, Sub procedures and sub functions: Menus - Common Dialog Boxes - Writing General Procedures. Multiple Forms: Multiple Forms - Standard Code Modules-Variables and Constants in Multiple-Form Projects.

UNIT - IV
List Boxes and Combo boxes - Do/Loop - For/Next Loop - Using MsgBox Function - Using String Function - Arrays: Control Arrays - Single Dimension Array - For Each/Next Statements - User defined data types - Multidimensional Arrays.

UNIT - V
Accessing Database Files: Visual basic and Database Files - Using Data Control - Viewing a Database File - Navigating the Database in Code - Using List Boxes and Combo boxes as Data-Bound Controls.

TEXT BOOK:

REFERENCE BOOKS:
UNIT - I

Introduction - History of operating system - Different kinds of operating system - Operation system concepts - System calls - Operating system structure.

UNIT - II

Processes and Threads: Processes - threads - thread model and usage - inter process communication.

UNIT - III

Scheduling - Memory Management: Memory Abstraction - Virtual Memory - page replacement algorithms.

UNIT - IV


UNIT - V


TEXTBOOK


REFERENCE BOOKS


B. Sc. COMPUTER SCIENCE

SEMESTER V

CORE VIII - COMPUTER NETWORKS

UNIT - I


UNIT - II

Data Link Layer: Data Link Layer Design Issues - Error Detection and Correction - Elementary protocols - Sliding Window Protocols - MAC sub layer: Channel allocation problem - Multiple access protocols.

UNIT - III


UNIT - IV

Transport Layer: Transport Services - Elements of transport protocols - Congestion control - Internet transport protocol - UDP - TCP.

UNIT - V


TEXT BOOK


REFERENCE BOOKS


B.Sc. COMPUTER SCIENCE
SEMESTER V
CORE PRACTICAL V - PROGRAMMING IN VB

1. Construction of an Arithmetic Calculator (Simple)
2. Writing simple programs using loops and decision making statements.
   a. Generate Fibonacci series.
   b. Find the sum of N numbers.
   c. To display the numbers/symbols in triangle format.
3. Write a program to create a menu and MDI Forms.
4. Write a program to create a simple input screen with four basic controls to read input and write it to a file.
5. Write a program to display files in a directory using DriveListBox, DirListBox and FileListBox control and open, edit and save text file using Rich text box control.
6. Write a program to illustrate Common Dialog Control and to open, edit and save text file.
7. Write a program to develop windows based installation file with Student Registration form and Login form using database access.
8. Develop a program to Insert, update, delete a Record in database using ADO.
9. Write a program to implement Personal Information System using MDI and Standard ADODC controls and reports.
10. Write a program to implement animation using timers.
UNIT - I

Java Evolution - Simple Java Program - Java program structure - Java Tokens - Java Statements - JVM - Command Line Arguments - Constants, Variables, and Data Types - Operators and Expressions.

UNIT - II


UNIT - III


UNIT - IV

UNIT - V


TEXT BOOK


REFERENCE BOOKS

B. Sc. COMPUTER SCIENCE

SEMESTER VI

CORE X - SOFTWARE ENGINEERING

UNIT - I


UNIT - II


UNIT - III


UNIT - IV


UNIT - V

TEXT BOOK

REFERENCE BOOKS
B.Sc. COMPUTER SCIENCE
SEMESTER VI
CORE PRACTICAL VI - PROGRAMMING IN JAVA

1. Write a program to find the Area of Square, Rectangle and Circle using Method Overloading.

2. Write a program to sort the list of numbers using Command Line Arguments.

3. Write a program to multiply the given two matrices.

4. Write a program to design a class to represent a bank account. Include the following:
   - Data Members: Name of the depositor, Account number, Type of account, and Balance amount in the account.
   - Methods: To assign initial values, To deposit an amount, To withdraw an amount after checking balance, and To display the name and balance.

5. Write a program that import the user defined package and access the Member variable of classes that contained by Package.

6. Write a program to handle the Exception using try and multiple catch blocks.

7. Write a program to illustrate the use of multithreads.

8. Write a program to create student registration form using applet with Name, Address, Sex, Class, Email-id.

9. Write a program to draw the line, rectangle, oval, text using the graphics method.

10. Write a program to create a sequential file that could store details about five products. Details include product code, cost, and number of items available and are provided through the keyboard. Compute and print the total value of all the five products.
B.Sc. COMPUTER SCIENCE
SEMESTER V
ELECTIVE I - PAPER I - DISCRETE STRUCTURES

UNIT - I

UNIT - II
Functions and Relations: Definition and examples - One-to-one and onto functions - Permutations. Relations: Definition and examples - Binary Relations - Properties - Equivalence and Partial Ordering - representation of relation in matrix, by Digraph - closure operations on relations.

UNIT - III

UNIT - IV
Graph Theory: Introduction - Definition and Examples - Edges sequence, walks, paths and circuits - Directed graph- Subgraph and operations on the graph - Isomorphic graphs - Connected - Matrix representation of Graphs.

UNIT - V
Trees: Introduction - Properties - Special Classes of Trees-Definition of spanning tree - minimal spanning tree.

TEXTBOOK

REFERENCE BOOKS
B Sc COMPUTER SCIENCE

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

TEXT BOOK

REFERENCE BOOK
B.Sc. COMPUTER SCIENCE
SEMESTER V
ELECTIVE I - PAPER III - PROBLEM SOLVING TECHNIQUES

UNIT-I:

UNIT-II:
Fundamental Algorithms: Exchanging the values of Two Variables - Counting - Summation of a set of Numbers - Factorial Computation-Sine function computation - Generation of the Fibonacci sequence - Reversing the Digits of an Integer - Base Conversion Character to Number Conversion.

UNIT-III:
Factoring Methods: Finding the square Root of a number - The Greatest Common Divisor of Two Integers - Generating Prime Numbers - Generation of Pseudo-random Numbers - Raising a Number to a Large Power.

UNIT- IV:
Array Techniques: Array Order Reversal-Array Counting or Histogramming - Finding the Maximum Number in a Set - Removal of Duplicates from an Ordered Array - Partitioning an Array - Finding the kth Smallest Element.

UNIT- V:
Merging, Sorting and Searching: Two way merge - sorting by selection, insertion, diminishing increment and partitioning -Binary search.

TEXT BOOK

REFERENCE BOOK
B.Sc. COMPUTER SCIENCE

SEMESTER VI

ELECTIVE II - PAPER I - DATA MINING AND WAREHOUSING

UNIT - I

UNIT - II

UNIT - III

UNIT - IV

UNIT - V
Data warehousing: Introduction - Operational data sources-data warehousing - Data warehousing design - Guidelines for data warehousing implementation - Data warehousing metadata - Online analytical processing (OLAP): Introduction - OLAP characteristics of OLAP system - Multidimensional view and data cube - Data cube implementation - Data cube operations OLAP implementation guidelines.

TEXTBOOK

REFERENCE BOOK
B.Sc. COMPUTER SCIENCE
SEMESTER VI
ELECTIVE II - PAPER II - UNIFIED MODELING LANGUAGE

UNIT - I

UNIT - II
Static Modelling Using Class Diagrams: Classes and Objects - Attributes and Operations - Visibility of Attributes and Operations - Class Scope Attribute - Mapping Class to Java Code - Attributes with Default Values - Association - Role Names - Qualified Association - Association Class - Ternary Association - Recursive Association - Multiple Association between Two Classes - Aggregation - Generalization - Abstract Class - Subclass Partitioning - Generalization Set - Interfaces - Packages and Grouping of Classes into Packages - Parameterized Classes.

UNIT - III

UNIT - IV

UNIT - V

TEXT BOOK

REFERENCE BOOK
B. Sc. COMPUTER SCIENCE

SEMESTER VI

ELECTIVE II - PAPER III - WEB TECHNOLOGIES

UNIT-I


UNIT-II


UNIT-III


UNIT-IV


UNIT-V


TEXT BOOK


REFERENCE BOOK

UNIT - I

UNIT - II
Medium Access Control: Motivation for a Specialized MAC- Hidden and exposed terminals - Near and far terminals - SDMA - FDMA - TDMA - Fixed TDM - Classical Aloha - Slotted Aloha - Carrier Sense Multiple Access - Demand assigned Multiple Access - PRMA Packet Reservation Multiple Access - Reservation TDMA - Multiple Access with Collision Avoidance - Polling - Inhibit Sense Multiple Access. CDMA - Spread Aloha multiple access. Comparison of S/T/F/CDMA.

UNIT - III

UNIT - IV

UNIT - V

TEXT BOOK

REFERENCE BOOKS
UNIT - I


UNIT - II


UNIT - III


UNIT - IV


UNIT - V


TEXT BOOK:

REFERENCE BOOK:
B.Sc. COMPUTER SCIENCE
SEMESTER VI
ELECTIVE III - PAPER III - INTERNET WORKING WITH TCP / IP

UNIT-I

Introduction and overview - Network Technologies - Internetworking concepts and architectural model - Classful Internet address

UNIT - II

Mapping Internet Address to Physical Addresses - Internet Protocol - Connectionless Datagram Delivery (IPv4) - Forwarding IP Datagrams - Error and Control Message (ICMP).

UNIT-III


UNIT-IV

Internet Multicasting - Mobile IP - Private Network Interconnection.

UNIT-V

The Domain Name System (DNS) - Electronic Mail - Voice and Video Over IP - Network Management - Ipv6

TEXT BOOK


REFERENCE BOOKS

B.Sc. COMPUTER SCIENCE

SEMESTER II

SKILL BASED ELECTIVE COURSE

SBEC - I - SYSTEM ADMINISTRATION AND MAINTENANCE

UNIT - I

UNIT - II

UNIT - III

UNIT - IV

UNIT - V

TEXTBOOK

REFERENCE BOOK
UNIT - I


UNIT - II

Internet Technologies: Modem - Internet addressing - Physical connections - Telephone Lines - Internet browsers - Internet Explorer - Netscape Navigator.

UNIT - III


UNIT - IV

Internet Relay Chat - Types of Network - Packet Switched Network - Circuit Switched Network - TCP/IP - Internet Protocol.

UNIT - V

Case Study: Online Passport - Online Gas Services - Online Train Reservation - Tamilnadu government services

TEXTBOOKS


REFERENCE WEBSITES

3. https://www.irctc.co.in
B.Sc. COMPUTER SCIENCE

SEMESTER V

SKILL BASED ELECTIVE COURSE

SBEC III - PRACTICAL - SHELL PROGRAMMING

1. Write a shell script to implement the file commands: rm, cp, cat, mv, cmp, wc, split, diff.

2. Write a shell script to print the following system configuration:
   a) currently logged user and his log name
   b) current shell, home directory, Operating System type, current path setting, current working directory
   c) show currently logged number of users, show all available shells
   d) show CPU information like processor type, speed
   e) show memory information

3. Write a shell script to implement the following: pipes, redirection and tee commands.

4. Write a shell script for displaying current date, user name, file listing and directories by getting user choice.

5. Write a shell script to modify "cal" command to display calendars of the specified range of months.

6. Write a shell script to find the sum of the individual digits of a given number.

7. Write a shell script to find the greatest among the given set of numbers using command line arguments.

8. Write a shell script for palindrome checking.

9. Write a shell script to print the multiplication table of the given argument using for loop.

10. Write a shell script to compare two files and if found equal delete the duplicate file.
B.Sc. COMPUTER SCIENCE
SEMESTER V
SKILL BASED ELECTIVE COURSE
SBEC IV - MULTI SKILL DEVELOPMENT

UNIT-I
Communication: Question tag - Gerund and Infinitives - Spotting the errors - Vocabulary - Synonyms - Antonyms - Prepositions - Articles - One word substitution - Sentence completion.

UNIT - II

UNIT - III

UNIT-IV

UNIT- V
Group Discussion - Importance - Types of GD - GD Skills - GD Etiquette - Essential Elements of a GD - Movements and Gestures to be avoided in a GD

TEXT and REFERENCE BOOKS
2. R.S. Aggarwal, "Quantitative Aptitude", S.Chand 2010. (Unit - II)
B.Sc. COMPUTER SCIENCE
SEMESTER VI
SKILL BASED ELECTIVE COURSE
SBEC V - PRACTICAL - IMAGE EDITING TOOL

1. Design a greeting card for birthday using different text effects.
2. Apply various filter effects to an image.
3. Design the front page of the college calendar using gradient.
4. Create a pattern using pattern stamp tool and clone stamp tool.
5. Design a web page layout.
6. Design a bunch of flowers.
7. Perform/Simulate Plastic Surgery on any part of the face.
8. Create See-through texts
9. Convert Black and White Photo to Color Photo
10. Fill a text with an appropriate image (Example: The word "Flower" should be filled with some flower images)
B.Sc. COMPUTER SCIENCE
SEMESTER VI
SKILL BASED ELECTIVE COURSE
SBEC VI - PHP SCRIPTING LANGUAGE

UNIT - I
Basic of Coding in PHP: Mixing PHP and HTML - Introducing Variables and Operators - PHP Variables.

UNIT - II
Displaying Dynamic Content - Sending E-Mail - Using File System - Uploading Files to Website.

UNIT - III
Establishing a connection - Creating a Database Table - Inserting Data into the Table - Selecting and Displaying Data.

UNIT - IV
System Planning - Adding Contacts Modifying Contacts - Deleting Contacts - Working with Contacts.

UNIT - V
Managing a Simple Mailing List: Mailing List Software - Developing Subscription Mechanism, Mailing Mechanism. Creating Custom Logs and Reports.

TEXTBOOK

REFERENCE BOOKS
B Sc COMPUTER SCIENCE

B.Sc. COMPUTER SCIENCE
SEMESTER III
NON MAJOR ELECTIVE COURSE
NMEC I - PAPER I - BASICS OF COMPUTERS

UNIT-I

UNIT - II

UNIT-III
Anatomy of Digital Computer: Functions and Components of Computer - Central Processing Unit - Control Unit - Arithmetic - Logic Unit - Memory - Registers - Addresses. Memory Units: RAM, ROM, PROM, EPROM, EEPROM, And Flash Memory.

UNIT-IV

UNIT - V

TEXT BOOK:

REFERENCE BOOKS:
B.Sc. COMPUTER SCIENCE
SEMESTER III
NON MAJOR ELECTIVE COURSE
NMEC I - PAPER II - SYSTEM ADMINISTRATION AND MAINTENANCE

UNIT - I

UNIT - II

UNIT - III

UNIT - IV

UNIT - V

TEXTBOOK

REFERENCE BOOK
UNIT-I


UNIT-II

Editing and Proofreading Documents: Make Changes to a Document - Insert Saved Text - Find the Most Appropriate word - Reorganize a Document Outline - Find and Replace Text.

UNIT-III

Error Corrections: Correct Spelling and Grammatical Errors - Finalize a Document - Changing the Look - Quickly Format Text and Paragraphs - Manually Change the Look of Characters - Manually Change the Look of Paragraphs.

UNIT-IV

Bulleted and Numbered Lists: - Create and Modify Lists - Presenting Information in Columns. Creating Table: Create a Tabular List - Present Information in a Table.

UNIT-V

Formatting a Table: Format Table Information - Perform Calculation in a Table - Use a Table to Control Page Layout.

TEXT BOOK


REFERENCE BOOK

UNIT - I


UNIT - II

Internet Technologies: Modem - Internet addressing - Physical connections - Telephone Lines - Internet browsers - Internet Explorer - Netscape Navigator.

UNIT - III

Introduction to HTML: Designing a home page - HTML documents - Anchor tag - Hyper Links.

UNIT - IV

Traditional text and formatting - tables - images - frames

UNIT - V

Case Study: Online Passport - Online Gas Services - Online Train Reservation - Tamilnadu government services

TEXTBOOKS


REFERENCE WEBSITES

3. https://www.irctc.co.in
UNIT-I
Overview of C: History of C - Importance of C - Basic structure of C programs. Constants, variables and data types: Character set - C Tokens - Keywords and identifiers - Constants - Variables - Data types - Declaration of variables - Declaration of storage classes - Assigning values to variables- Defining symbolic constants. Operators and expression -Types of Operators -Arithmetic Expressions - Evaluation of expressions - Precedence of arithmetic operators - Type conversions in expressions - Operator precedence and associativity. Managing input and output operations: Reading and writing a character - Formatted input and output.

UNIT-II

UNIT-III
Character arrays and strings: Introduction - Declaring and initializing string variables - Reading strings from terminal - Writing strings to screen - String handling functions - Table of strings. User - Defined functions: Introduction - Need for user - Defined function - A Multi- function program - Elements of user- Defined function - Definition of functions - Return values and their types - Function calls - Function declaration - All category of functions - Nesting of functions - Recursion - Passing arrays to functions - Passing strings to function.

UNIT-IV
Structures and Unions: Introduction - Defining a structure - Declaring structure variables - Accessing structure members - Structure initialization - Copying and comparing structure variables - Arrays of structures - Arrays within structures - Structures within structures - Structures and functions - Unions - Size of structures - Bit fields. Pointers: Introduction - Understanding pointers - Accessing the address of a variable - Initializing of pointer variables. Chain of pointers - Pointer expressions -Pointers and arrays - Pointers and character strings - Arrays of pointers - Pointers as function arguments - Functions returning pointers - Pointers to functions - Pointer and structures.

UNIT-V
File Management: Introduction - Defining and opening a file -Closing a file - Input/Output operation on files - Error handling during I/O operations - Random access files - Command line arguments.

TEXTBOOK

REFERENCE BOOKS

Note :This paper should be handled and valued by Computer Science Department.
B.Sc. COMPUTER SCIENCE
SEMESTER I / III
ALLIED PRACTICAL I - PROGRAMMING IN C

Practical Programming List:

1. Create a program to find the Simple Interest and Compound Interest.
2. Create a program to find the mean and standard deviation.
3. To find the largest of a given set of numbers.
4. Create a program to find the given number is Prime or not.
5. Create a program to calculate \( \sin(x) \) using series.
6. Create a program to print the Fibonacci series.
7. Create a program to generate Pascal triangle.
8. Create a program to convert Binary to Decimal conversion.
9. Create a program to calculate binomial co-efficient using recursion.
10. Create a program to reverse a string without using string library function.

Note: For University Practical Exam, both Internal and External should be appointed from Department of Computer Science.
B Sc COMPUTER SCIENCE

B.Sc. COMPUTER SCIENCE
SEMESTER II / IV
ALLIED II - C++ PROGRAMMING

UNIT - I

UNIT - II
Functions - Prototyping - Call by Reference - Return by Reference - Inline Functions - Default Arguments - const Arguments - Function Overloading - Friend and Virtual Functions, Classes and Objects - Class - Member Functions - Arrays with in a Class - Memory Allocation for Objects - Static data members - Static member functions - Arrays of Objects - Objects as Function Arguments - Friendly Functions - Returning Objects - const Member Functions - Pointers to Members, Constructors and Destrucors.

UNIT - III
Operator Overloading and Type Conversions, Inheritance: Extending Classes - Derived Classes - Single Inheritance - Multilevel Inheritance - Multiple Inheritance - Hierarchical Inheritance - Hybrid Inheritance - Virtual Base Classes - Abstract Classes, Pointers, Virtual Functions and Polymorphism. Pointers: Pointers to Objects -this Pointer - Pointers to Derived Classes - Virtual Functions - Pure Virtual Functions

UNIT - IV

UNIT - V:
Templates: Class Templates - Class Templates with Multiple Parameters - Function Templates - Function Templates with Multiple Parameters - Overloading of Template Functions - Member Function Templates - Non-Type Template Arguments, Exception Handling: Basics - Exception Handling Mechanism - Throwing Mechanism - Catching Mechanism - Rethrowing an Exception - Specifying Exceptions

TEXTBOOK

REFERENCE BOOKS

Note: This paper should be handled and valued by Computer Science Department.
1. Write a C++ program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write member functions ADD(), SUB(), MUL(), DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.

2. Write a C++ program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT.

3. Write a C++ program to create a class STRING. Write a Member Function to initialize, get and display strings. Overload the operators ++ and == to concatenate two Strings and to compare two strings respectively.

4. Write a C++ program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.

5. Write a C++ program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGLE from class Shape and Calculate Area and Perimeter of each class separately and display the result.

6. Write a C++ program using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.

7. Write a program to convert an Infix Expression to Postfix Expression using Arrays.

8. Write a C++ program to create a class to implement the data structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element. Check for overflow and underflow conditions.

9. Write a C++ program to check whether the given string is a palindrome or not using Pointers.

10. Write a C++ program to merge two files into a single file

Note: For University Practical Exam, both Internal and External should be appointed from Department of Computer Science.
UNIT-I


UNIT-II


UNIT-III

The Relational Data Model and SQL - Database Constraints - Relational Model Concepts - Key concepts - Relational Model Constraints and Relational Database Schemas - Update Operations, Transactions, and Dealing with Constraint Violations.

UNIT-IV

Basic SQL - SQL Data Definition and Data Types - Specifying Constraints in SQL - Basic Retrieval Queries in SQL - INSERT, DELETE, and UPDATE Statements in SQL - Additional Features of SQL.

UNIT-V

More SQL: Complex Queries, Triggers, Views, and Schema Modification - More Complex SQL Retrieval Queries - Specifying Constraints as Assertions and Actions as Triggers - Views (Virtual Tables) in SQL.

TEXT BOOK


REFERENCE BOOK


Note: This paper should be handled and valued by Computer Science Department.
1. Create a database for a company and create a table for employee. Add fields emp_no, name, qualification, DOJ, designation and salary for employee table. And save the table in the database.

2. Create another table for customer and add fields cust_no, name, date_of_purchase, products, quantity, and price and save in the same company database.

3. Create table for personal information and Add at least 10 records for the table with the following fields no, name, DOB, address, ph_no, email_id, and blood group.

4. Create a new table for students and do table manipulations by Adding, deleting, and updating fields to the table.

5. Calculate the sum, average and assign the grade in the student table.

6. Display the students name in ascending and descending order after sorting.

7. Create a home budget table for calculate expenses of house for 4 months with the following fields month, house rent, EB, telephone bill, milk, grocery, vegetables, medical_exp, total_exp
   i) find out the month on which the budget is high
   ii) List out all grocery expenses for all the months.
   iii) Find out the month on which the telephone bill is low.
   iv) Any other relevant filters.

8. For the employee table execute the following queries.
   i) List the manager name under each department using GROUP BY.
   ii) List the employees whose salary is greater than 10000 and less than 20000.
   iii) List out the employee details who is in morning shift.

9. Display the information of home budget table using columnar and tabular form.

10. Generate the report for any one of the above said tables.

   Note: For University Practical Exam, both Internal and External should be appointed from Department of Computer Science.
B. Sc COMPUTER SCIENCE

SEMESTER II / IV

ALLIED II - E-COMMERCE TECHNIQUES

UNIT-I

UNIT-II

UNIT-III

UNIT-IV:
HTML and Web Designing: Brief History of HTML - HTML Tags - Table Creation - Hyperlink - Reference - Headings - Alignment - Simple Web Page Creation.

UNIT-V:
E-mail: Email - Email Components - use of Email - Email creation-browsing-search engines-downloads.

TEXT BOOKS

REFERENCE BOOKS

Note: This paper should be handled and valued by Computer Science Department.
B.Sc. COMPUTER SCIENCE
SEMESTER II/ IV
ALLIED II - HTML PROGRAMMING

1. Write HTML code to develop a web page that contains the different background and foreground color, with various styles.

2. Write HTML code to create a Webpage that contains an Image at its left hand side of the page when user clicks on the image; it should open another web page that displays the details of that image.

3. Create a web Page using HREF tag having the attribute ALINK, VLINK etc.

4. Create a web page, when user clicks on the link it should go to the bottom of the page.

5. Write a HTML code to create a web page of pink color and display moving message in red color.

6. Create a web page, showing an ordered list of name of your five friends and unordered list of any five your hobbies.

7. Create a HTML document containing a nested list showing the content page of any book.

8. Create a student mark list in HTML using Tables.

Note: For University Practical Exam, both Internal and External should be appointed from Department of Computer Science.
UNIT - I

UNIT - II
Getting Started: Starting a Program - Identifying Common Screen Elements - Choosing Commands - Finding Common Ways to Work - Getting Help with Office

UNIT - III

UNIT - IV
MS-EXCEL: Creating a Simple Spreadsheet - Editing a Spreadsheet - Working with Functions and Formula - Formatting Worksheets - Completing Your Spreadsheet - Creating Charts.

UNIT - V
MS-POWERPOINT: Creating and Viewing Presentations - Editing a Presentation - Working with Presentation Special Effects.

TEXT BOOKS:

REFERENCE BOOKS

Note: This paper should be handled and valued by Computer Science Department.
B.Sc. COMPUTER SCIENCE  
SEMESTER I / III  
ALLIED PRACTICAL I - OFFICE AUTOMATION  

Word Processor

1. i) Create a document, save it and edit the document as follows:
   a. Cut, Copy, Paste options.
   b. Find and Replace options.
   c. Undo and Redo options.

   ii) Format the document:
   b. Change Character style and size.
   c. Formatting paragraph: Center, Left aligns & Right align
   d. Changing paragraph and line spacing, Using Bullets and Numbering in Paragraphs.
   e. Creating Hanging Paragraphs

2. Enhance the documents using Header, Footer, Page Setup, Border, Page number, watermarking, Orientation and Print Preview.

3. Insert tables and pictures in a document as follows
   f. Creating Tables in a document, Selecting Rows & Column sort the record
   g. Insert a picture - edit size and add name of the picture above it.
   h. Also do basic text formatting like - bold, italic, underline, alignments etc in table.,

4. Using mail merge, send an invitation/notice (by creating the invitation/notice) for the following situation (at least 5 addresses to be entered) (Any one of the following)
   i. For opening a new branch
   j. Inauguration function
   k. Informing about new scheme or offer
Spreadsheet

5. a. Create a worksheet, moving/copying/inserting/deleting rows and columns (usage of cut, paste, commands, copying a single cell, copying a range of data, filling up a cell. Undo command, inserting a row, column, deleting rows and columns).

b. Formatting worksheets

Bold, Italic, Font size changing, Auto fill, date format, Currency format

6. Open an excel and create fields as follows

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of the student</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>Total</th>
<th>Avg</th>
<th>Result</th>
<th>Grade</th>
</tr>
</thead>
</table>

i. Enter S.No, Name, marks for 10 students

ii. Find total and average using formula.

iii. Find Result whether the student is pass or fail and also assign grade as per our university norms.

iv. Insert a column chart showing the comparison of marks in different subjects of different students.

7. i) Creating and running a macro.

ii) Assigning button to a defined macro.

iii) Editing a macro.

Presentation

8. Create a presentation with apply background/Themes, apply custom animation on text, insert images/word art and animate the images with effects.

9. Create "My album" use photos, audio, and videos with necessary Transition Effects

10. Making an Organization Structure in Power Point

Starting an organization chart, Entering names and Titles, Adding Members, Formatting the Boxes, Text and Lines, Rearranging the Org Chart, Finishing the Chart

Note: For University Practical Exam, both Internal and External should be appointed from Department of Computer Science.
UNIT-1

UNIT-2

UNIT-3

UNIT-4
Working with Layer Styles and Filter Effects: Understanding Layer Styles - Working with Smart Objects - Understanding Filters.

UNIT-5
Animation, 3D, and Printing in Photoshop CS5: Working with Actions - Working with Automate Commands - Exploring 3D in Photoshop - Working with Animation in Photoshop CS5 - Printing in Photoshop Cs5.

TEXTBOOK

REFERENCE BOOKS
2. Lisa Danae Dayley, Brad Dayley, "Adobe Photoshop Cs6 Bible", Wiley India Pvt Ltd.
3. Edward Bailey, "Photoshop: 7 Ways to Use Adobe Photoshop Like a Pro", Create space Independent Publishing Platform

Note: This paper should be handled and Valued by Computer Science Department.
1. Design a greeting card for birthday using different text effects.
2. Apply various filter effects to an image.
3. Design the front page of the college calendar using gradient.
4. Create a pattern using pattern stamp tool and clone stamp tool.
5. Design a web page layout.
6. Design a bunch of flowers.
7. Create Plastic Surgery for the Nose
8. Create See-through texts
9. Convert Black and White Photo to Color Photo
10. Fill a text with an appropriate image (Ex: Write Flower and fill it with some flower images)

Note: For University Practical Exam, both Internal and External should be appointed from Department of Computer Science.
UNIT - I
Basic of Coding in PHP: Mixing PHP and HTML - Introducing Variables and Operators - PHP Variables.

UNIT - II
Displaying Dynamic Content - Sending E-Mail - Using File System - Uploading Files to Website.

UNIT - III
Establishing a connection - Creating a Database Table - Inserting Data into the Table - Selecting and Displaying Data.

UNIT - IV
System Planning - Adding Contacts Modifying Contacts - Deleting Contacts - Working with Contacts.

UNIT - V
Managing a Simple Mailing List: Mailing List Software - Developing Subscription Mechanism, Mailing Mechanism. Creating Custom Logs and Reports.

TEXTBOOK

REFERENCE BOOKS

Note: This paper should be handled and valued by Computer Science Department.
1. Write a PHP program to find the factorial of a number using forms.

2. Write a PHP program to design a login form using Conditional Statements.

3. Write a PHP program to design a visiting card.

4. Design a simple web page to generate multiplication table for a given number using PHP.

5. Design a web page that should compute one's age on a given date using PHP.

6. Write a PHP program to download a file from the server.

7. Write a PHP program to store the current date and time in a COOKIE and display 'Last Visited' date and time on the web page.

8. Write a PHP program to store page views count in SESSION, to increment count on each refresh and to show the count on web page.

9. Write a PHP program to design a calendar for the current year.

10. Write a PHP Program to create a time table for the current semester.

Note: For University Practical Exam, both Internal and External should be appointed from Department of Computer Science.
B.Sc. COMPUTER SCIENCE
SEMESTER II / IV
ALLIED II - BASICS OF COMPUTER AND FINANCIAL COMPUTING

UNIT-I


UNIT-II

Computer Software - Programming Languages - Operating Systems - Computer Networks - Internet - Electronic Mail.

UNIT-III


UNIT-IV

Inventory info - Stock Group - Stock Category - Stock Item - Unit of Measures - Godowns - Inventory vouchers - Re-order level and status - Batch-wise Details - Bill of Material.

UNIT-V

Statutory and Taxation - Value Added Tax (VAT) - Tax Deducted at Source (TDS) - Tax Collected at Source (TCS) - Service Tax - Security Control and Tally audit - Export and Import - Backup and Restore - Open Database Connectivity.

TEXTBOOKS


2. A complete Reference - "Tally 9.0", Tally Solutions (P) Limited

REFERENCE BOOK


Note: This paper should be handled and Valued by Computer Science Department.
B. Sc. COMPUTER SCIENCE
SEMESTER II / IV
ALLIED II - FINANCIAL COMPUTING SOFTWARE

1. Company Information
   a. Company creation
   b. Select Company
   c. Alter Company
   d. Split Company Data

2. Gateway of Tally
   a. Accounts info
      i) Groups
      ii) Ledgers
      iii) Voucher Types
   b. Inventory info
      i) Stock Group
      ii) Stock Category
      iii) Stock item
      iv) Unit of Measures
      v) Godown
   c. Accounting Vouchers
   d. Inventory Vouchers

3. Statutory and Taxation
   a. Value Added Tax (VAT)
   b. Tax Deducted at Source (TDS)
   c. Tax Collected at Source (TCS)
   d. Service Tax

4. Display
   a. Trial Balance
   b. Day Book
   c. Accounts Book
   d. Statement of Accounts
   e. Inventory Books
   f. Statement of Inventory

Note: For University Practical Exam, both Internal and External should be appointed from Department of Computer Science.