

**PORTION FOR MID TERM EXAMINATION
COMPUTER SCIENCE**

Computer Fundamentals:

- Functional components and their inter connections
- Steps involved in problem solving in computers
- File and Directory Commands in Linux Terminal or Windows Terminal (MSDOS)

Data Representation of numbers :

- Decimal, Binary, Octal and Hexadecimal number System
 - Internal Conversion between number systems
- Binary Arithmetic (addition, subtraction(1's complement, 2's complement), multiplication, division)

**PORTION FOR FIRST TERM EXAMINATION
COMPUTER SCIENCE**

Computer Fundamentals:

- Functional components and their inter connections
- Steps involved in problem solving in computers
- File and Directory Commands in Linux Terminal or Windows Terminal (MSDOS)

Data Representation of numbers :

- Decimal, Binary, Octal and Hexadecimal number System
 - Internal Conversion between number systems
- Binary Arithmetic (addition, subtraction(1's complement, 2's complement), multiplication, division)

5. Programming in C:

Sr.No.	Topics	Sub-Topic	
I	Fundamentals of C Programming	Data Types, Operations and expressions	<ul style="list-style-type: none"> ◆ The C character set ◆ Structure of C program ◆ Data Types, C keywords ◆ Constant and variables ◆ Type declaration ◆ Operators ◆ Header files
II	Control Structures	Basic input/Output Statements Conditional Statements Loops Selection Statements	<ul style="list-style-type: none"> ◆ Formatted Input/Output ◆ Unformatted input/Output ◆ If statement, if else statement ◆ For loop, While loop, Do....While loop, Nesting of loops ◆ The break and continue Statement ◆ Switch statement
III	Arrays and Functions	Arrays	<ul style="list-style-type: none"> ◆ Array Definition and declaration of one dimensional array

PORTION FOR SECOND TERM EXAMINATION

COMPUTER SCIENCE

Sr. No.	Topic	Sub-Topic	
I	Fundamentals of C Programming	Data Types, Operations and expressions	<ul style="list-style-type: none"> ◆ The C character set ◆ Structure of C program ◆ Data Types, C keywords ◆ Constant and variables ◆ Type declaration ◆ Operators ◆ Header files
II	Control Structures	Basic input/Output Statements Conditional Statements Loops Selection Statements	<ul style="list-style-type: none"> ◆ Formatted Input/Output ◆ Unformatted input/Output ◆ If statement, if else statement ◆ For loop, While loop, Do....While loop, Nesting of loops ◆ The break and continue Statement ◆ Switch statement
III	Arrays and Functions	Arrays Functions Standard Library: String functions Math functions Character functions	<ul style="list-style-type: none"> ◆ Array Definition and declaration of one & two dimensional array ◆ Function definition and declaration ◆ Local & Global variables ◆ Parameter passing : call by value, ◆ Passing array element to a function ◆ Passing array to a function ◆ strlen (),strcpy(), strcmp(), strcat() ◆ log(),log10(), pow (),sqrt(), sin (), cos () abs () ◆ isalnum (), isdigit (), islower (), isupper (), isalpha (), toupper(), tolower()
IV	Dynamic data structure	Pointers Structures	<ul style="list-style-type: none"> ◆ Introduction to pointers ◆ call by reference ◆ Pointers to arrays ◆ Dynamic allocation of memory for arrays ◆ Basic of structures ◆ Declaration of a structure ◆ Nesting of structures ◆ Array of structures ◆ Pointer to structures

**FIRST TERMINAL PROGRAM LIST FOR PRACTICALS
COMPUTER SCIENCE**

PART I

- 1) Write a C program to find the Area of a triangle
- 2) Write a C program to interchange two values without using a third variable.
- 3) Write a C program to convert Centigrade to Fahrenheit
- 4) Write a C program to solve simultaneous equations

PART II (If and If Else Structure)

- 5) Write a C program to determine the largest of three numbers using if statement.
- 6) Write a C program to determine the roots of a quadratic equation using different conditions.
- 7) Write a C program to determine the class of a student when marks in 6 subjects are given.

PART III (While & Do... While Loop)

- 8) Write a C program to determine the sum of the digit of a number using While loop
- 9) Write a C program to generate the Fibonacci Series using the While loop.
- 10) Write a C program to determine the Reversal of a number using Do... While loop.
- 11) Write a C program to verify if a number is an Armstrong Number or not using Do...While loop.

PART IV (FOR LOOP)

- 12) Write a C program to determine the summation of first n even numbers.
- 13) Write a C program to find the Factorial of a number
- 14) Write a C program to determine the summation of reciprocal of square of odd numbers

PART V (Break and Continue)

- 15) Write a C program to generate N Prime numbers

PART VI (Switch Statement)

- 16) Write a C program to display the number of days in a given month
- 17) Write a C program to calculate the area of a sphere and cone depending on user's choice

PART VII (1 – D Arrays)

- 18) Write a C program to find the smallest number in a single dimensional array
- 19) Write a C program to perform insertion and deletion of a number in an array.
- 20) Write a C program to perform insertion of a number in a sorted array (descending)

**SECOND TERMINAL PROGRAM LIST FOR PRACTICALS
COMPUTER SCIENCE**

PART VIII (data structures)

- 21) Write a C program to perform Selection sort
- 22) Write a C program to perform insertion sort
- 23) Write a C program to perform bubble sort
- 24) Write a C program to perform binary search
- 25) Write a C program to merge two single dimensional sorted arrays.

PART IX (2 – D Arrays)

- 26) Write a C program to find the sum of each row and column in a matrix.
- 27) Write a C program to find the transpose and check if the matrix is symmetric or not.

PART X (Functions)

- 28) Write a C program to find the Sin of an angle using the following formula where x indicates angle in radians and N represent the number of terms.

$$\text{Sin}(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} \dots \dots \dots \text{up to N terms}$$

- 29) Write a C program to accept the radius of a circle from the user and calculate area and perimeter of a circle by implementing a single function using call by reference.

PART XI (Strings)

- 30) Write a C program to accept a line of text from the user and convert each lower case letter to upper case and vice-versa.
- 31) Write a program to accept a line of text from the user and count the number of words
- 32) Write a C program to determine if the given word is a palindrome or not.
- 33) Write a C program to implement strcat function.