Principle of programming in c
Question bank of module 1 and module 2

1. What is Computer. Describe the various types of computers
2. What are input devices? Mention and explain any two input devices
3. With a neat diagram explain the basic structure of a computer
4. What is pseudocode? Explain with example, how it is used as a problem-solving tool
5. Define Algorithm. Write an algorithm to find the area and perimeter of a circle
6. Define flowchart. Explain with an example
7. Explain the basic structure of a C program with an example
8. What is Token? What are the different types of tokens available in C language
9. Define variable. Explain the rules for constricting variables in C language.
10. List all the operators used in C. Give examples
11. What are basic data types available in „C"? Write the significance of each data type.
12. What are the formatted input and output functions. Explain with examples
13. Write the guidelines to use scanf() and printf() functions in C language
14. Explain any five operators used in C language
15. Explain the following operators in C language
    i) Relational ii) Logical iii) Conditional
16. What is an identifier (variable)? What are the rules to construct identifier (varible)? Classify the following as valid/invalid Identifiers.
    i)num2 ii) $num1 iii) +add iv) a_2 v) 199_space vi) _apple vii)#12

program questions

1. Define pseudocode. Write a pseudocode to find the sum and average of given three numbers.
2. What is an Algorithm? Write an algorithm to find the largest of 3 numbers.
3. Draw the flowchart and write a C program to compute simple interest.
4. Write a C program in C to find the area and perimeter of a circle.
5. Write a program in C to print the numbers from 4 to 9 and their squares.
6. Write a C program in C to find the area and perimeter of a rectangle.
7. Write a C program which takes as input p,t,r. Compute the simple interest and display the result.
8. Write a C program to find the area of triangle when we know the lengths of all three of its sides.
9. Write a C program to find the largest of three numbers using ternary operator.
10. What is an expression? Evaluate the following expressions

i) 100 % 20 < = 20 – 5 + 100 % 10 – 20 = = 5 > = 1 != 20

ii) a + = b * = C - = 5 where a=3 b=5 and c=8

MODULE 2

1. List all conditional control statements used in C. Explain any two with syntax and example.
2. What are unconditional control statements? Explain any two with syntax and example.
3. Explain switch statement with syntax and example.
4. List the differences between while loop and do-while loop. write a C program to find sum of Natural numbers from 1 to N using for loop.
5. Explain if, if else, and cascaded if-else with examples.
6. Explain with example, the meaning of statement and block in a C program
7. Write a C program to demonstrate the use of unconditional goto statement
8. Explain with syntax, if, if-else and nested if-else statements in C program
9. Explain with syntax, the different loops used in C program
10. Show how break and continue statements are used in a C program, with example
11. What is dangling else problem? Explain how to handle it in C programming

Programs

1. Write a C program that reads from the user an arithmetic operator and two operands, perform the corresponding arithmetic operation on the operands
2. using switch statement Implement a C program to find the reverse of an integer number and check whether it is palindrome or not
3. Write a C program to find the factorial of a number using do-while, where the number n is entered by user.
4. Write a program in C to find the sum of n natural numbers without using any loops
5. Write a C program that takes three coefficients (a,b,and c) of a quadratic equation (ax^2+bx+c) as input and compute all possible roots and print them with appropriate messages.
6. Write a C program to find GCD of two numbers using ternary operator and for .

MODULE 3

1. **What is function**? Explain the difference between user defined and library functions.
2. Explain function call, function definition and function declaration with examples.

   or

   Explain the different elements of user defined functions in detail
3. Differentiate between call by value and call by reference with examples

or

Explain two categories/types of argument passing techniques, with examples

4. Define a function. List and explain the categories of user defined functions

   or

   What is function? Explain different classification of user defined functions based on parameter passing and return type with examples.
5. What are actual parameters and formal parameters? Illustrate with example.
6. Give the definition and example of the following
   (i)External variable (ii) Static variable (iii) Automatic variable (iv) Register variable.
7. What are the storge class of variables.
8. List and explain different scope of variables.

Programs

1. What is function? Write a function to find the sum of two numbers
2. Write a c-program using function to check whether the given number is prime or not.
3. Write a program in „C" using functions to swap two numbers
4. Write a program in C using functions to swap two numbers using global variables concept and call by reference concept.
5. Write a C program to find the factorial of a number using functions
6. Write a program to find GCD and LCM of two numbers using concept of functions.
7. What is **Recursion**? Write a C program to compute polynomial co-efficient
8. $\mathbf{n}C_r$ using recursion.
9. Define a recursion . Write a C recursive function for multiplying two integers where a function call is passed with two integers m and n
10. Write a C program to check a number is a prime or not using recursion
11. Write a C program to find the factorial of a number using recursion
12. Explain recursion. and write a program to find n^{th} term of Fibonacci series

Questions on array

1. What is **array**? Explain the declaration and initialization of one dimensional and two dimensional array with an example.
2. Define array. Explain with suitable example how to declare and initialize 1D array.
3. Explain different operation on one dimensional array in detail.
4. Explain different operation on two dimensional array in detail.

Programs

1. Write a C program to read N integers into an array A and to find the (i)sum of odd numbers, (ii) sum of even numbers, (iii) average of all numbers. Output the results computed with appropriate headings
2. Write a C program to search an element using linear and binary techniques
3. Write a C program for [consider integer data]
   (i) Bubble sort (ii) Linear search
4. Write an algorithm and develop a C program that reads N integer numbers and arrange them in ascending order using selection Sort
5. Write an algorithm and develop a C program to search an integer from N numbers in ascending order using binary searching technique.
6. Write a C program to find the transpose of a given matrix
7. Write a C program that accepts (3×3 ordered matrices A and B),and compute the following (i)summation of Two numbers (ii) Subtraction of Two numbers
8. Write a C program to find the largest element in an array
9. Write a C program to find the sum and average of n integer numbers
10. Write a C program to sort the elements by passing array as function argument

MODULE 4

STRING

1. Define string. How string is declared and initialized?
2. Explain string input/output functions with an example
3. What is string? Write a C program that reads a sentence and prints the frequency of each of the vowels and total count of consonants?
4. Write a C program to eliminate multiple spaces from a sentence and make it single
5. Explain with syntax and example, the different string manipulation library functions with example

   or

   Define a string. Explain any 4 string library functions with syntax and example

   or

   Explain string manipulation library functions with their syntaxes
6. Define string. List out all string manipulation function. Explain any two with example
7. Write a C program to copy a string (combination of digits and alphabet) to another string (only alphabets)
8. Explain the following without using library functions
   a. String compare

b. String length
c. Converting upper case to lower case
d. String concatenation
e. Extracting a substring

POINTERS

1. What is pointer ? Explain how the pointer variable declared and initialized?
2. Explain the array of pointes with example? or Explain how pointers and arrays are related with example
3. What is a pointer? Write a C program to find the sum and mean of all elements in an array using pointer
4. Write a C program to swap two numbers using call by address(pointers or reference) method
5. What is pointer? give the advantages and disadvantages of pointer data type
6. Explain pointers arithmetic
7. Write a note on null pointer and generic pointers
8. Explain passing arguments to function using pointers with example

MODULE 5

STRUCTURES

1. What is **structure**? Explain the C syntax of structure declaration with example
2. Explain array of structure and structure within a structure with an example
3. Write a C program to maintain a record of „n" students details using an array of structures with four fields(roll no,name,marks,and grade).Assume appropriate data type for each field. Print the marks of the student given the student name as input.
4. Write a C program to pass structure variable as function argument
5. Explain the difference between array and structures
6. Explain with example how to create a structure using „typedef"
7. How to find the size of structure
8. Explain nested structures with example
9. Explain different ways of passing structure to functions

FILES

1. List and explain different types of file
2. Explain steps in using files in a program
3. Explain different ways of reading a data from files
4. Explain different ways of writing data to files
5. Explain detecting end-of-file