

B.Sc. Sem.-2 (Rep.) Examination

CC 3-P-103

Computer Science

Time : 2-30 Hours]

May-2024

[Max. Marks : 70

- Q1(A) Explain the concept of an algorithm and its significance in programming. Provide an example of a simple algorithm and illustrate it using a flowchart. (7)
- Q1(B) Describe the process of designing an algorithm. Discuss the key steps involved and explain why each step is important. Provide an example of designing an algorithm for a specific task, and illustrate it using a flowchart. (7)
- OR
- Q1(A) Compare and contrast structured programming and object-oriented programming paradigms. Discuss their respective advantages and disadvantages in the context of algorithm development and implementation. (7)
- Q1(B) Explain the concept of control structures in programming. Discuss the differences between sequence, selection, and iteration control structures. Provide examples of each type of control structure and illustrate them using flowcharts. (7)
- Q2(A) Explain the concept of variables in C programming. Illustrate with suitable examples how variables are declared, initialized, and used in C programs. Provide an example code the use of variables in a simple arithmetic operation. (7)
- Q2(B) Discuss the significance of control statements in C programming. Compare and contrast the usage of selection and iteration control statements with examples. Provide a scenario where you would prefer using a switch statement over an if-else statement and justify your choice. (7)
- OR
- Q2(A) Define the term "loop" in the context of programming. Explain the purpose and functionality of the while loop and the do-while loop in C programming. Provide examples of each type of loop and discuss their differences and appropriate use cases. (7)
- Q2(B) Describe the structure and functionality of the for loop in C programming. Demonstrate the syntax of a for loop and explain its components with suitable examples. Discuss the advantages of using a for loop over other types of loops in specific situations. (7)
- Q3(A) Explain the role of conditional statements in controlling the flow of execution in C programs. Discuss the syntax and usage of the if-else statement with examples. Illustrate the use of nested if-else statements with an example. (7)
- Q3(B) Explain the concept of arrays in C programming. How are arrays declared and initialized? Provide an example to illustrate. (7)

OR

- Q3(A) Write a C program to find the sum of all elements in an integer array. Include necessary function declarations, definitions, and a sample input-output scenario. (7)
- Q3(B) Discuss the difference between a character array and a string in C. Provide examples to illustrate your explanation. (7)
- Q4(A) Explain the significance of functions in C programming. How do functions aid in code organization and reusability? (7)
- Q4(B) Write a C program that uses a function to find the maximum element in an integer array with output. (7)
- OR
- Q4(A) Discuss the concept of passing arrays to functions in C. How can arrays be passed as arguments to functions? Provide an example with explanation. (7)
- Q4(B) Write a C function that takes two strings as input and concatenates them into a single string. (7)
- Q5 True/False Attempt any seven out of twelve.(2 Marks each)** (14)
- 1) In C programming, every statement must end with a semicolon.
 - 2) Variables in C must be declared before they can be used.
 - 3) The 'if' statement in C is used for loop control.
 - 4) C is a high-level programming language.
 - 5) Comments in C programming are enclosed within /* and */.
 - 6) In C, '==', '<', '>', '<=', '>=', and '!=' are comparison operators.
 - 7) C language is case-insensitive.
 - 8) The 'scanf' function is used for formatted input in C.
 - 9) The 'break' statement is used to terminate the loop immediately and transfer control to the statement following the loop.
 - 10) In C, '&&' is the logical OR operator.
 - 11) A 'do-while' loop in C will always execute its body at least once.
 - 12) In C, 'if' statements can be nested within each other.

BEST OF LUCK