

Set A

Group A

Brief Answer Questions:

[10×1=10]

Attempt all question.

1. What is a variable in C?
2. Is it possible to use modulus operator in float data type?
3. How do you declare and initialize a string in C?
4. What is the difference between "&&" and "||" logical operators in C?
5. Can while statement end with a semicolon?
6. Explain the purpose of the "return" statement in a function.
7. Differentiate Assembler and Compiler.
8. Why is it that not all header files are declared in every C program?
9. Which is better if-else ladder or switch?
10. How can we copy just a portion of a string?

Group B

Short Answer Questions:

[5×3=15]

Attempt ANY FIVE questions.

11. Write a C program to reverse a string without using any library function.
12. Write a program that accepts 10 numbers and sort it in descending order.
13. Explain the purpose of the break and continue statements in C with examples.
14. What is flowchart? What are the symbols used in creating flowchart?
15. Explain the components of function with suitable example.
16. Write a function that accepts two numbers and if the first number is greater than the second number, it should display the difference between them. Otherwise, it should display the sum of the two numbers. Ensure that your program is structured to use a function for the calculation.

Group C

Long Answer Questions:

[3×5=15]

Attempt ANY THREE questions.

17. Write a program to check whether a given number is a prime or not.
18. Write a program to check if two given matrices of size 3*3 are identical or not.
19. Write a C program to input marks of five subjects. Calculate percentage and display the grade according to following:

Percentage $\geq 90\%$: Grade A

Percentage $\geq 80\%$: Grade B

Percentage $\geq 70\%$: Grade C

Percentage $\geq 60\%$: Grade D

Percentage $\geq 40\%$: Grade E

Percentage $< 40\%$: Grade F

20. Write a program to print the following pattern

5 5 5 5 5

4 4 4 4

3 3 3

2 2

1

Group D

Comprehensive Answer Questions:

[2×10=20]

Attempt all questions.

- 21.** Write a program to implement a menu-driven interface to allow the user to perform different operations.

The menu should include options to:

- a) Calculate the factorial of a given number
- b) Check whether given number is Armstrong or not
- c) Check whether given number is odd/even
- d) exit

Utilize loops to continuously display the menu and prompt the user for input until they choose to exit.

- 22.** Discuss the concept of loops in C programming, emphasizing their role in executing repetitive tasks efficiently. Explain the components of a loop structure and provide examples to illustrate their usage. Additionally, highlight the types of loops available in C discussing their characteristics and appropriate use cases. Furthermore, assess the advantages and disadvantages of utilizing loops in C programming.

Group A

Brief Answer Questions:

[10×1=10]

Attempt all question.

1. In a switch statement, what will happen if a break statement is omitted?
2. What is the advantage of an array over individual variables?
3. Define algorithm and flowchart.
4. What is bitwise operator?
5. Can the “==” statement be used in comparing strings?
6. Define an infinite loop. Write its syntax.
7. What is conversion specifier in C? Why it is used?
8. Should a function contain a return statement if it does not return a value?
9. Write the purpose of the ternary operator “?:” .
10. Define variable declaration and initialization.

Group B

Short Answer Questions:

[5×3=15]

Attempt ANY FIVE questions.

11. Explain any five string handling function.
12. Write a function with argument and no return type that accepts a number and prints its factorial.
13. Write a program that takes an integer number from user, and displays message welcome if the given integer number is of four digits only otherwise displays rejected.
14. Write a program to check whether the string inputted by user is palindrome or not.
15. Write a C program to find the maximum element in an array of size n.
16. Which of the following operators is incorrect and why? (\geq , \leq , $\>$, $\<$, $\>=$). Explain relational and logical operator with suitable example.

Group C

Long Answer Questions:

[3×5=15]

Attempt ANY THREE questions.

17. Write a program to calculate $XA+YB$ where A and B are 2×2 matrices and $X=2$, and $Y=3$
18. Create a program in C that calculates the total fare for a bus journey based on the distance traveled and the age of the passenger. If the passenger is under 12 years old, they pay half fare; if they are over 60 years old, they pay discounted fare. Display the total fare accordingly. Assume fare is Rs. 10 per kilometer.
19. Write a program to check whether a given number is Armstrong or not.
20. Write a program to print the following pattern:
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25

Group D

Comprehensive Answer Questions:

[2×10=20]

Attempt all questions.

21. Explain the concept of functions in C programming. Discuss the components of a function and illustrate with examples. Additionally, highlight the types of functions in C and their respective characteristics. Finally, assess the advantages and disadvantages of utilizing functions in C programming.
22. Write a program to implement a menu-driven interface to allow the user to perform different operations. The menu should include options to:
- a) Read a number and find its square root
 - b) Read three numbers and find the greatest
 - c) Read two numbers as a and b and calculate $c=ab$
 - d) Exit

Utilize loops to continuously display the menu and prompt the user for input until they choose to exit.
