Total No. of Questions :5]

SEAT No. :

PE12179

[Total No. of Pages : 4

[6581]-2410

F.E.

ESC-105-COM : FUNDAMENTALS OF PROGRAMMING LANGUAGES

(2024 Pattern) (Semester-I/II) (Credit System)

Time : 2½ Hours] *[Max. Marks : 60*

Instructions to the candidates:

1) ***All five questions are compulsory, and for each question students must attempt any three out of the six sub-questions.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Assume Suitable data wherever necessary.***

Q1) Solve any three

a) List any three features that make C an important programming language. **[4]**

b) What is the difference between a keyword and an identifier in C? **[4]**

c) Explain how variables are declared in C. What are the rules and syntax for declaring variables? **[4]**

d) Explain the difference between a constant and a variable in C. **[4]**

e) Explain the purpose of using the const keyword when declaring a variable in C. **[4]**

f) Explain the role of the volatile keyword in C programming and when it is typically used. **[4]**

Q2) Solve any three

a) List the arithmetic operators in C with their symbols. **[4]**

b) Explain the difference between && (AND) and || (OR) logical operators in C. **[4]**

c) Explain any 4 bitwise operators in C. **[4]**

d) List the types of assignment operators available in C. **[4]**

e) How would you use relational operators to compare two numbers in C? Provide an example. **[4]**

f) Explain the difference between pre-increment (++i) and post-increment (i++) operators in C. **[4]**

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Q3) Solve any three

a) Explain while loop with a suitable example. **[4]**

b) Explain simple if statement if-else statement and nested if-else statement with suitable example. **[4]**

c) Write a program for finding factorial of a number. **[4]**

d) Explain for loop with continue and break statement. **[4]**

e) Describe how a "Switch" statement works and compare it to an "if-else" structure. **[4]**

f) Write a program that reads a number from the user and prints whether the number is positive, negative, or zero using an "if-else" statement. **[4]**

Q4) Solve any three

a) Explain how an array is stored in memory and how elements can be accessed using an index. **[4]**

b) Explain various function for reading and writing a string. **[4]**

c) Write a program that asks the user to input 10 numbers, stores them in a one-dimensional array, and then prints the sum of the numbers. **[4]**

d) Explain how a string in C is terminated and how this affects string operations. **[4]**

e) Explain any five String handling Functions with example. **[4]**

f) Write a program that reverses a string entered by the user without using built-in functions. **[4]**

Q5) Solve any three

a) Explain the concept of return values in C. How is the return type of a function determined? Provide an example of a function that returns an integer value. **[4]**

b) Write a C program that accepts two numbers from the user, swaps them using a function. **[4]**

c) Explain various Categories of Function. **[4]**

d) How do you initialize structures in C? Explain with an example of initializing a structure that holds a book's title, author, and price. **[4]**

e) Create a structure in C called Employee that holds the employee's name , ID and salary. Write a program to initialize a structure variable with values and display the employee's information. **[4]**

f) Differentiate Between Recursion and Iteration in function with suitable example. **[4]**

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Total No. of Questions :10]

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F.E.

ESC-105-COM : FUNDAMENTALS OF PROGRAMMING LANGUAGES

(2024 Pattern) (Semester-I/II) (Credit System)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8 , Q9 or Q10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Assume Suitable data if necessary.***

Q1) a) What is a character set in C? Explain with examples. **[3]**

b) What are keywords and identifiers in C? **[3]**

c) What are C tokens? Explain the different types. **[4]**

d) Describe the history and importance of the C programming. **[4]**

OR

Q2) a) Write an algorithm to perform arithmetic operations (+, –, *). **[3]**

b) What are symbolic constants in C? How are they defined? **[3]**

c) Define flowchart. Draw the flowchart to compute the area of circle. **[4]**

d) Define variables with syntax. Enlist the datatypes in C. **[4]**

Q3) a) Explain increment and decrement operators in C with suitable examples. **[3]**

b) Explain operator precedence and associativity in C. **[3]**

c) Describe arithmetic expressions in C with suitable examples. **[4]**

d) What are bitwise operators in C? **[4]**

OR

Q4) a) What is a conditional operator in C? Explain with suitable example. **[3]**

b) Describe various logical operators in C. **[3]**

c) Write a program in C to demonstrate use of relational operators. **[4]**

d) How are expressions evaluated in C? **[4]**

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Q5) a) What is the if else statement in C? Explain with examples. **[4]**

b) Write a program in C to generate the multiplication table of a number. **[5]**

c) Describe the syntaxes of while and do while loop. **[5]**

OR

Q6) a) What is the use of the break statement in loops or switch statements? **[4]**

b) Write a program in C to decide the greatest amongst three numbers. **[5]**

c) Write a program in C to decide if the entered number is prime or not. **[5]**

Q7) a) How do you declare a one-dimensional and two-dimensional array? **[4]**

b) Describe the different ways of array initialization. **[5]**

c) How do you write and read input strings from terminal in C ? **[5]**

OR

Q8) a) What is a two-dimensional array? Explain with example. **[4]**

b) Describe the basic predefined string handling functions. **[5]**

c) Write a C program to provide the comparison result of user input strings. **[5]**

Q9) a) Why do we need user-defined functions in C? **[4]**

b) Describe the elements of user defined functions. **[5]**

c) Write a program to generate fibonacci series up-to first 10 numbers. **[5]**

OR

Q10) a) Explain structure declaration and initialization. **[4]**

b) What is recursion? Explain with suitable example. **[5]**

c) Explain categories of functions in C with examples. **[5]**

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