17/12/24 (FN)

Roll No. | | | | | | | | | | |

ADDITIONAL CONTROLLER OF EXAMINATIONS AU CHENNAI 600 025

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)
B.E., (Full Time) - END SEMESTER EXAMINATIONS, NOV/DEC 2024

B.E., Computer Science and Engineering
Semester I

CS6101- Programming with C

(RUSA R- 2018)

Time: 180 minutes | Answer ALL Questions | Max.Marks : 100

PART- A (10 x 2 = 20 Marks)

1	What are the main steps involved in executing a program from source code to running application?	2
2	State any four special features of C Language	2
3	What is the purpose of the conditional operator (?:) in programming?	2
4	What is the role of header files in C language	2

5	Predict the output of the following C Code
	`#include <stdio.h>`
	`int main()`
	`{`
	`int arr[] = {10, 20, 30, 40, 50};`
	`int *ptr = arr;`
	`printf("%d %d %d\n", *ptr, *(ptr + 2), *(arr + 4));`
	`return 0;`
	`}`
		2

6	How does a do-while loop differ from a while loop?	2
7	Write a code snippet to to declare a 2x3 multi-dimensional array and initialize it with values..	2
8	State how a pointer variable differ from a variable?	2
9	Write a function in C to calculate the factorial of a number using recursion.	2
10	What is enumerated datatype?	2

PART- B (8 x 8 = 64 Marks) (any 8 questions)

11	(i)	What is meant by precedence and associativity of operators in C ? Explain with an example.	4.

	(ii)	Exemplify the use of 'break' and 'continue' statements in C with suitable example.	4
12	(i)	Explain how logical relationship is checked in C program?	4
	(ii)	What are formatted input and output statements in C? Give suitable examples.	4
13	(i)	How do you store and access elements in a multi-dimensional array? Provide an example.	4
	(ii)	Write a C program to print the following on the screen using nested loops 1 2 3 4 5 6 7 8 9 10	4
14	(i)	Write a C program to print the sum of the following series up to n terms where n is given by the user: $x - x^3/3! + x^5/5! - \ldots$ (The value of x is given by the user.)	4
	(ii)	Write a C program to find and print the factorial of the first 'n' numbers that are not divisible by 2 or 3.	4
15		Write a C program to sort the given list of elements and to find the second largest element in an array.	8
16		Explain in detail how the data is passed to a function by writing a function that takes a decimal number and base as argument and returns the equivalent number of the given base.	8
17	(i)	.Explain the use of string operators in C with examples	4
	(ii)	Write a program that uses a function to add a string to the end of another string without using any library function	4
18		Explain in detail about the pointers in C and Write a program to swap two numbers using pointers.	8
19		Write a C program to find the maximum and minimum elements in a sorted array by passing the array pointer to a subroutine.	8
20		Explain the use of various pre-processor directives with suitable examples.	8
21		Brief about how the files are handled in C programs with appropriate formats	8
22		Discuss in details about the dynamic memory allocation functions in C with example.	8

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PART- C (2 x 8 = 16 Marks)

23 Write a C program using structures to store the data of 'n' books, where 'n' is given by the user (use dynamic memory allocation). Include a menu that will allow the user to select any of the following features: 8

a. Use a function to display the book information while getting the book with the maximum and minimum price.
b. Use a function to display the book records in alphabetical order by title.
c. Use a function to display the book records by their genre (e.g., Fiction, Non-fiction, Science, etc.).

24 Discuss how binary files are created and managed in C with a program to implement the following: 8

a. Create two files namely source and destination.
b. Read a character from the source file and write the same into the destination file till end-of-file is not reached.
c. Delete the source file at last.