LM/2022

21CS11

(2021 Batch only)

Reg. No. _____
(To be filled by the candidate)

COIMBATORE INSTITUTE OF TECHNOLOGY
(Government Aided Autonomous Institution)
COIMBATORE 641 014

B.Tech. DEGREE EXAMINATIONS, JANUARY 2023
(First Semester)

ARTIFICIAL INTELLIGENCE AND DATA SCIENCE BRANCH

21CS11 C PROGRAMMING

Time : 3 Hours | Max: 75 marks

INSTRUCTIONS

1. Answer all questions in PART A and as per choice in PART B.
2. Part A and Part B questions should be answered separately in the same answer sheet.

PART A (10X2=20)

		KL	CO
1.	Discern the difference between Structured and Object Oriented Programming.	KN	CO1
2.	Outline the cardinal difference between 'getchar()'and 'getch()'?	AN	CO1
3.	Given an Array A[0:N-1]of positive integers, write a C code snippet that finds the maximum of 'N' numbers.	AN	CO2
4.	Write down the syntax for the ternary operator. Can it be related with any one of the control statement? Justify.	KN	CO2
5.	Why it is necessary to have function prototypes while developing C programs? Justify.	KN	CO3
6.	Differentiate between static and dynamic memory allocation.	AN	CO3
7.	Outline the purpose of 'strstr' function? Mentionthe syntax for the same.	KN	CO4
8.	What are Recursive functions? In what way do they differ from ordinary C functions? Give an example.	KN	CO4
9.	Define the objective of structures? How structure elements are accessed using a structure variable and a structure pointer?	KN	CO5
10.	What are Bit fields? Give examples	C	CO5

PART - B (5X11=55)

			Marks	KL	CO
11.	a)	Give short notes on Top-down and bottom-up approaches pertaining to programming paradigms.	5	AN	CO1
		(OR)			
	b)	Draw a flowchart for finding the maximum of four numbers.	6	AN	CO1
12.		Draw a flowchart to check whether the given year is a leap year or not.	5	AP	CO1
	b)	Declare a single-dimensional array of size 10 and get positive numbers from the user and find the average of those numbers.	6	AP	CO1

Contd...

13.		Write down the difference between while and do-while loop. Using while loop statement, construct a C program that generates a Fibonacci sequence of 'n' numbers with seed values '0' and '1'.	**11**	AP	CO2
		(OR)			
14.		Using switch case, devise a C code snippet to implement a simple calculator that performs the following operations: '+', '-','/' and '*'.	**11**	AP	CO2
15.		How to declare a 2-dimensional array of integers? Write a C program that performs Matrix multiplication of two matrices viz., A_{MxN} and B_{NxM} and store the result in C_{MxM}.	**11**	AP	CO3
		(OR)			
16.		List down various standard String library functions with appropriate syntaxes. Explain any two various string library functions in detail with a suitable example code snippet.	**11**	AP	CO3
17.		Explain in detail about Pass-by-Value and Pass-by-Reference with suitable examples. With a working code snippet show how an array can be passed to a function.	**11**	AN	CO4
		(OR)			
18.	a)	Write a recursive function to calculate factorial of any number 'n' ranging between 1 and 12.	**5**	AN	CO4
	b)	Give a comparative chart about various *storageclasses* in 'C'	**6**	AN	CO4
19.		Write a sample C program to copy one text file (*ip.txt*) into an another text file(op.*txt*) ensuring that it copies only alphanumeric symbols ignoring special characters like ',' ,':', '.'etc.	**11**	AP	CO5
		(OR)			
20.	a)	Tabulate the difference between structures and unions. Giveexamples.	**5**	AP	CO5
	b)	Create a structure by name '*Stud*' having five structure elements 'm1,'p1','c1' and 'total' and rank'(initially assigned as zero). Accept marks for three students and compute total for each one of them. Based on the calculated total marks, allocate rank for each student and print it.	**6**	AP	CO5

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