(5)

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Roll No:

(To be filled in by the candidate)

PSG COLLEGE OF TECHNOLOGY, COIMBATORE - 641 004 SEMESTER EXAMINATIONS, APRIL 2023

MCA Semester: 1

20MX12 STRUCTURED PROGRAMMING CONCEPTS

Time : 3 Hours Maximum Marks : 100

INSTRUCTIONS:

- Answer ALL questions. Each question carries 25 Marks.
- Part a) carries 3 marks, b) carries 10 marks c) carries 12 marks
- a) Give tips to take decisions when to use and when not use Interpreter and Compiled form of programming Languages for software development.
 - b) Discuss when to use and when not use "C" programming language for applications development.
 - Discuss the various criteria for classification of Programming Languages. Based on these criteria fit the position of Programming Language C in the classification chart.
 - Discuss the various properties of good programming language in the perspective of programmer and language developer. Enumerate reasons for the popularity of a programming language. Give simple illustrations in C for above said points. [6]
- a) Distinguish Entry control and Exit control Iteration statements with an example.
 - b) Compare and contrast the following programming language constructs:
 - i) Expressions and Statements
 - i) Else If statements and Switch statements (5)
 - c) i) 1) Fill in the blanks. The following code snippet is from a program that takes as input a stream of integers until the number 0 is entered. It then prints the total number of even (zero excluded) and odd integers that were input (7)

#include <stdio.h></stdio.h>	A	00	40
int main() {			
int odd_count=0, eve	n count=0 nu	m.	
	ar integers (inp	ut 0 to terminate):");	
scanf("%d", #);			
while() ~ ~ ~		
1			
10	if(-9	
even_count++;			
even_country,	alaa ah		
6	else		
odd_count++;			
6~	- 1V		
1	.0		
printf("in The number	r of even numb	ers entered is %d.", e	wen countly
	r or ood numbe	rs entered is %d.", or	o_count);
return 0;			
}			

 Discuss two types of Iterative structure statements with their syntax, semantics and sequence controls in programming language 'C' with illustrations [5]

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ii) It is required to read a character string containing only upper-case alphabetic characters and blank spaces from the keyboard. Then, for a given value of an integer k, every alphabetic character is replaced by the k-th next alphabetic character. It is assumed that in counting the k-th next alphabet, the letter 'A' comes after 'Z'. For example, with the value of k as 3, the string 'HAPPY BIRTHDAY TO YOU" will be replaced by 'KDSSB ELUWKGDB WR BRX. Write a C program to do the above task.

a) What is the output of the following program?

```
main()
{ int array[10] = { 20, 18, 16, 14, 12, 10, 8, 6, 4, 2 };
int *ptr;
ptr = array;
printf("%d,%d", *ptr + 2, *(ptr + 2));
}
```

- b) i) In this C declaration "long *(*(*(*z)(void))[7])(void); ", What is z? Give syntax for the use of 'z'.
 - ii) With a suitable application distinguish the following

[3+4]

- Pointers and Arrays
- 2) Arrays and Structure
- i) Discuss the following aspects of structured programming with illustrations from C and compare the various alternatives
 - Call by Value and Call by Reference.

[4]

Storage Classes and applications

[5]

Header Files vs. Library files

[3]

[OR]

 Write a program that accepts two matrices and store them in column-major form and perform matrix concatenation of corresponding matrix elements.

A[i][j] = 5 and B[i][j] = 6 and the result is c[i][j] = 56.

Use dynamic memory, Pointer and Pointer Arithmetic operations

- 4. a) Compare and contrast the uses of Scripting and Markup languages in Web applications development?
 - Discuss and Compare features and limitations of System programming Languages with Script languages in detail.
 - Explain the following features of C language with simple real-life applications.
 - Static and Dynamic libraries
 - ii) Low level programming

/END/

FD/II