GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
PROGRAMMING FOR PROBLEM SOLVING
CS201

TIME ALLOTTED: 3 HOURS   FULL MARKS: 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)
Answer any *ten* from the following, choosing the correct alternative of each question: 10×1=10

			Marks	CO No

1 (i) Which of the following options is correct if the below program is executed   **1**   **CO1**
with #include directive?

```
                void main( )
        {           char c = 'C';
                    printf("%d", c);
        }
```

a) Compile time error
b) C
c) 67
d) 'C'

(ii) Do-while loop is one kind of   **1**   **CO2**
a) Entry Controlled
b) Exit Controlled
c) Nested Controlled
d) None of these

(iii) Recursion is a process where   **1**   **CO3**
a) a function can call by main function
b) a function can call another library function
c) a function can call itself
d) None of these

(iv) What will be the output ?   **1**   **CO2**

```
                void main()
        {           int a=23;
                    printf("%d",a<<2);
        }
```

a) Compile time error
b) 92
c) 5
d) 1000

(v)   What is the output of this following C Program.?   1   CO2
```
int main()
{ int n,r,a;
   n=134; a=0;
   while(n!=0)
   {
      r=n%10;
      a=a*10+r;
      n=n/10;
   }
   return 0;
}
```

    a) 431
    b) 134
    c) 431 134
    d) Compiler error

(vi)   _____ in C means the introduction of a function to C   1   CO4
compiler.

    a) Function Prototyping
    b) Function calling
    c) Recursion
    d) Function definition

(vii)   What will be the following output ?   1   CO2

```
#include<stdio.h>
int main()
{   int a=1;
    switch(a)
    {
      case 0: printf("A");
      case 1: printf("B ");
      case 2: printf("C ");
              break;
      default: printf("D ");
    }
    return 0;
}
```

    a) A B C D
    b) B C D
    c) B C
    d)   None of these

(viii) Which of the following is not a valid C variable name?   1   CO2
    a) int number
    b) float rate
    c) int variable_count
    d) int $main

(ix)   #include <stdio.h>   1   CO4

```
#include <stdio.h>
void main()
{ int c=10;
  int *p;
  p=&c;
  printf("%d", *p);
}
```

    a) 10
    b) 2346
    c) NULL
    d) Compile time error

(x)   Which of the following are themselves a collection of different data types?   1   CO4
    a) String
    b) Structure
    c) Char
    d) all of the mentioned

(xi)   In the standard library of C programming language, which of the following header file is designed for standard input output?   1   CO5
    a) conio.h
    b) dos.h
    c) stdio.h
    d) math.h

(xii)   What is the output of following C Program?   1   CO2

```
void main()
{  int k, j;
  for(k=1, j=10; k <= 5; k++)
  {     printf("%d ", (k+j));
  }
}
```

    a) compiler error
    b) 10 10 10 10 10
    c) 11 12 13 14 15
    d) None of the above

GROUP – B
(Short Answer Type Questions)
Answer any *three* from the following: 3×5=15

			Marks	CO No
2.	(a)	What is ternary operator in C programming?	1	CO2
	(b)	Explain the usage of "continue" statement with the help of a small code snippet.	4	CO2
3.	(a)	Explain the term "Type casting" in C Programming with the help of an example.	4	CO2
	(b)	What is the necessity of C preprocessor or Macro statements in C programming?	1	CO4
4.		Find the factorial of a given integer number using recursion.	5	CO3
5.		Write a C program to find out the sum of n no of elements of an 1D array.	5	CO2
6.	(a)	What do you mean by the term "Storage Class" in C programming?	1	CO4

			Marks	CO No.
(b)	Explain different type of storage classes in C programming language.		4	CO4

GROUP – C
(Long Answer Type Questions)
Answer any *three* from the following: 3×15=45

			Marks	CO No.
7.	(a)	Explain the detailed structure of Computer system w.r.t CPU, memory and Input-Output unit along with proper diagram.	10	CO1
	(b)	What is the main difference between 'Algorithm' and 'flowchart'?	2	CO1
	(c)	Perform following addition: $(110100)_2 + (101110)_2 = (?)_{10}$	3	CO1
8.	(a)	What do you mean by the term keyword and Identifier in C programming?	2	CO2
	(b)	Specify different naming rules of identifiers in C.	3	CO2
	(c)	Explain the term "Precedence" and "Associativity" in C programming by performing following operation: $20 + 8 * 3 - 17 + 8 / 2 + 12$	4	CO2
	(d)	Write an algorithm and draw its corresponding flowchart for converting a Celsius temperature data given by the user as an input to its corresponding Fahrenheit temperature.	6	CO2
9.	(a)	What is the difference between "while" and "do-while" loop in C programming along with proper example?	3	CO3
	(b)	Write a C program for printing the following Grade of a student when total marks of that student is given as an input.	7	CO3

Marks	Grade
90 to 100	O
80 to 89	E
70 to 79	A
60 to 69	B
50 to 59	C
40 to 49	D
0 to 39	F

			Marks	CO No.
	(c)	Explain the difference between ++i and i++ in C programming?	3	CO3
	(d)	What is the usage of "break" statement in switch-case structure?	2	CO3
10.	(a)	Explain the term "pointer" in C programming.	1	CO3
	(b)	What is the main difference between "Call by value" and "call by reference" in C programming?	2	CO3
	(c)	Write a C program to implement "Call a function by passing Reference" concept for swapping two given integer input.	6	CO3
	(d)	What is the difference between "Array" and "Structure" in C programming?	2	CO3
	(e)	State the usage of following 4 predefined functions in string.h header file: a)strlen( ), b)strcpy() , c)strcat() and strcmp( ).	4	CO3
11.	(a)	What is the difference between structure and union in C?	3	CO4
	(b)	Write a C program to define a structure of employee having data members name, age, address and salary. Take the data for n employees in an array and find the average salary.	7	CO4
	(c)	What is the significance of fopen( ) and fclose( ) function in C file?	2	CO4
	(d)	Specify the different accessing mode of opening a file in C	3	CO4