

GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
PROGRAMMING FOR PROBLEM SOLVING (Backlog)
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 with #include directive? <pre> void main() { char c = 'C'; printf("%d", c); } </pre> a) Compile time error b) C c) 67 d) 'C'	1	CO1
	(ii) Do-while loop is one kind of a) Entry Controlled b) Exit Controlled c) Nested Controlled d) None of these	1	CO2
	(iii) Recursion is a process where 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	1	CO3
	(iv) What will be the output ? <pre> void main() { int a=23; printf("%d",a<<2); } </pre> a) Compile time error b) 92 c) 5 d) 1000	1	CO2

(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 compiler.

1 CO4

- 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>`
`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?
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?
a) conio.h
b) dos.h
c) stdio.h
d) math.h
- (xii) What is the output of following C Program?
`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

- (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: $3 \times 15 = 45$

- | | | 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 | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Marks</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>90 to 100</td> <td>O</td> </tr> <tr> <td>80 to 89</td> <td>E</td> </tr> <tr> <td>70 to 79</td> <td>A</td> </tr> <tr> <td>60 to 69</td> <td>B</td> </tr> <tr> <td>50 to 59</td> <td>C</td> </tr> <tr> <td>40 to 49</td> <td>D</td> </tr> <tr> <td>0 to 39</td> <td>F</td> </tr> </tbody> </table> | 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 | | |
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| 40 to 49 | D | | | | | | | | | | | | | | | | | | |
| 0 to 39 | F | | | | | | | | | | | | | | | | | | |
| | (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 | | | | | | | | | | | | | | | | |