SASTRA DEEMED UNIVERSITY

(A University under section 3 of the UGC Act, 1956)

End Semester Examinations

February 2022

Course Code: **CSE106**

Course: **FUNDAMENTALS OF COMPUTER SCIENCE**

Question Paper No. : **UGF053** Max. Marks:**100**

PART – A

Answer all questions **10 x 2 = 20 Marks**

1. Construct an algorithm to compute the sum of two integer values. If both input values are same, then return multiplication of them.

2. Assess the output of the following code and what will be result if we will change the type identifier in printf statement from %f to %d?

```
#include<stdio.h>
int main()
{
int a = 5.0;
//float b=23;
printf ("Result is = %f ", (23 / a) * a);
return 0;
}
```

3. Write a C program to swap the value of two variable without using third variable.

4. Evaluate the output of the following codes

a)
```
#include<stdio.h>
int main()
{
static int num = 6;
```

```
printf("%d**",--num);
if(num)
{
main(num);
}
//printf("%d ",--num);
return 0;
}
```

b)
```
#include<stdio.h>
int main()
{
        static int num = 6;
        //printf("%d**",--num);
        if(num)
        {
          main(num);
        }
        printf("%d ",--num);
        return 0;
}
```

5. Predict the output of the following code and justify

```
#include<stdio.h>
int main()
{
        int i;
        for(i = 10; i>9; i+=3-2)
        { printf("Output"); }
        return 0;
}
```

6. State the difference between call by value and call by reference with example.

7. Guess the output of the following code and explain the answer

```
#include<stdio.h>
int main(){
 char arr[15] = "This is Input STRING";
 int *ptr;
 ptr = arr;
 printf("%c",ptr[3]);
 return 0;
}
```

8. Define Structures in C programming language.

9. Explain the steps involved in using FILES in C programming.

10. How to build a C project which contains multiple files?

PART – B

Answer all questions **4 x 15 = 60 Marks**

11. What is an algorithm and flowchart? Explain both with their properties and constraints. Derive a solution to the traffic signal problem using both concepts.

(OR)

12. Explain the Operators in C programming language with example.

13. Compose a C program to perform arithmetic calculator using switch and each case must be labelled with operator. The program must read the input from the user. If the input is not equal to any of the labelled operators, then it must warn the user to enter the arithmetic operator as an input. Each case must read the inputs individually. Write an algorithm for this problem prior to code.

(OR)

14. a) Write a C program to find the Fibonacci series of a number using function along with algorithm. (7)
    b) Write a C program to find the factorial of a number using recursion along with flowchart. (8)

15. Construct a C program to read two arrays and then sort them. Then merge two sorted arrays to third array.

(OR)

16. Create a Structure called 'CAR' which have members like Brand, Model, Color, Gear_Type, Color, Fuel_type, No_of_seats, Strorage_capacity. Declare three Structure variables as Honda_City, Toyota_Innova and Tata_Nexon. Read all the values for each structure elements and print all of them.

17. Write a C program to create three files: 1. 'Students.txt' which contains 10 students names, 2. 'Marks.txt' which contains 10 marks. 3. ' Report.txt' which will copy the content of all the data from students and marks files.

(OR)

18. Write short notes on following topics with examples
    A) File descriptor (3)
    B) lseek() (3)
    C) Debugging (6)
    D) Macro (3)

PART – C

Answer the following **1 x 20 = 20 Marks**

19. a) Write a C program to count the frequency of a vowels and digits from the given input string. (10)

b) Write a C program to print the content from the file "Bill.txt" which contains items with price along with number of lines in the file. (10)

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