U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: I / II**
Branch: Common to all Branches **Duration: 3 hrs.**
Course Code: 18CS1ESCCP / 18CS2ESCCP **Max Marks: 100**
Course: C Programming **Date: 21.09.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1 a) Write an algorithm and flowchart to perform arithmetic operations on two integers. **5**

b) i. Write a program to find area of a triangle using heron's formula (i.e. $area = \sqrt{s(s-a)(s-b)(s-c)}$) **10**

ii. In a shop, a discount of 10% on purchase amount is given. Write a program to find net payable amount. (Net payable amount = purchase amount – discount)

c) Complete the code: **5**

```
#include<stdio.h>
int main( )
{
  …… radius, area;
  ……("Enter the radius of a circle\n");
……("…… ",&radius);
area=……..;
printf("Area=…… ", ……);
}
```

UNIT - II

2 a) Write the syntax of while loop and for loop. Give an example for each. **6**

b) Given a binary number, write a program to print the decimal equivalent of it. **8**

c) Write a program using appropriate programming constructs to print the following pattern: **6**

```
1          or    1
22               01
333              101
4444             0101
55555            10101
```

OR

3 a) Write a program to find the sum of digits in a given integer number. **6**

b) Given four subjects marks, calculate the total, aggregate, and display the grades obtained by the student in a program. **8**

c) Predict the output: **6**

i.)
```
#include<stdio.h>
int main( )
   {
int a=1;
for(; a<10;)
      {
        printf("%d ",
a++);
         if(a==4)
           continue;
         a++;
      }
      printf("%d ",a);
     return 0;
}
```

ii.)
```
#include<stdio.h>
int main( )
{
int a = 19,x;
  if(a>0)
     x=0;
  else
     x=1;
   switch(a)
    {
      case 0: printf("Positive number\n");
break;
      case 1: printf("Negative number\n");
break;
      default: printf("Something went wrong
☹ \n");
}
   printf(" a=%d, x=%d", a,x);
   return 0;
}
```

UNIT - III

4 a) Write the syntax of function prototype, function call and function definition. Also give an example for each. **6**

b) Write a program to sum the series – 1/1! +4/2! +27/3! +……. using user defined functions. **8**

i. factorial ( ) -function to calculate the denominator in each term.

ii. display ( ) – function to print the sum of the series.

c) Given the array elements: **6**

2	4	5	6	8	10	12	14

The array had to store even numbers from 1 to 15. But element 5 is stored in it, which is an odd number. Write a C program to remove the element 5 from the array.

OR

5 a) Write a function to check whether the given number is a palindrome or not.(function should return a value to the calling function) **6**

b) Write a program to determine the type of a triangle (Types: equilateral, isosceles and scalene) given its three sides using four functions. **8**

c) Write a program to store 4X3 matrix. Calculate each row sum and column sum and display the same. **6**

UNIT - IV

6 a) There are different ways of reading and printing strings -Write the syntax and example for each. **6**

b) Write a program to read and print Book details using structures.(The details of the book are: Book title, author name, price, number of copies printed, and date of publication) **8**

c) Complete the code: **6**

```
#include<stdio.h>
…… complex
  {
    int real,imag;
   };

int main( )
{
struct complex c1={…….};
struct complex c2={…….};
struct complex csum;
csum.real=……;
csum.imag=…….;
printf("Sum of two complex
numbers=%d+i%d",……..,……);
}
```

UNIT - V

7 a) Illustrate the use of pointers in swapping two integer numbers using functions. **5**

b) Write a program to write into a file and retrieve the contents of the file. **10**

c) Write the output of the following program: **5**

```
#include<stdio.h>
int main( )
{
int a, b,*p,*q, r;
  p = &b;
  q = &a;
  *p = 7;
  a = 4;
  printf("a=%d\n", a);
  printf("b=%d\n",*p);
  *p = a-2;
  *q = *q * 4;
   r= *p - *q;
  printf("b=%d\n",*p);
  printf("a=%d\n",*q);
  printf("r=%d\n", r);
  return 0;
}
```

******