PRANVEER SINGH INSTITUTE OF TECHNOLOGY KANPUR

Even Semester Session 2021-2022 CT -II

B. Tech. II Semester

Programming for Problem Solving (KCS-201T)

Time: 1.5 Hrs. M. M. 15

S.N	Course Outcomes
CO1	Able to **define** [L1-Knowledge] basics of computer and C programming concepts, algorithms and **draw** [L1-Knowledge] flow charts.
CO2	Able to **explain** [L2- Comprehension] the C programming constructs such as data types (primitive and non primitive), operators, conditions and looping, modular programming, pointer, preprocessor directives and file management.
CO3	Able to **apply** [L3-Application] the C programming constructs such as data types (primitive and non primitive), operators, conditions and looping, modular programming, pointer, preprocessor directives and file management.

Section A

Q1. Attempt all questions: **(1X3 = 3 Marks)**

a) Explain the utility of return in the body of a function. CO2

b) Find output of the following. CO1

```
main()
{
int j,arr[6]={5,7,8};
for(j=0;j<5;j++)
printf("%d",arr[j]);
}
```

c) Find output of the following. CO1

```
main()
{
int a,b;

for(a=1;a<=3;a++)
{
for(b=1;b<=3;b++)
{
if(a==b)
break;
printf("%d%d\n",a,b);
}
}
}
```

Section B

(2X4 = 8 Marks)

Q2. Attempt all questions:

a i) Develop a program to find smallest and largest element in a given list of elements. CO3

Or

ii) Develop a program to search an element in the given list using binary search. CO3

b i) Explain the parameter passing mechanism to the function with the help of a suitable example using "call by value" and "call by reference. CO2

Or

ii) Discuss various categories of function with suitable examples. CO3

c i) Develop a program to print the following the pattern: CO3

A
AB
ABC
ABCD
ABCDE

Or

ii) Develop a program to get the sum of all the Prime numbers between 10 to 100. CO3

d i) Develop a C program to get the sum of following series. CO3
$-1+4^3/3!-7^5/5!+10^7/7!-$.....n terms

Or

ii) Develop a C program to get the sum of following series. CO3
1!+(1!+2!)+(1!+2!+3!)+.....n terms

Section C

(4X1 = 4 Marks)

Q3

i) Illustrate the concept of tail and non tail recursion with example? Develop a C program to get GCD (greatest common divisor) of three numbers by using a recursive function to find GCD of two numbers CO3

Or

ii) Illustrate the concept of sorting with example of Bubble sort . Develop a C program to sort a given list of elements using bubble sort. CO3