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TERM END EXAMINATIONS (TEE) – December 2021- January 2022

Programme	:	B.Tech.	Semester	:	Fall 2021-22
Course Name	:	Introduction to Problem Solving and Programming	Course Code	:	CSE1021
Faculty Name	:	Dr. Anju Shukla	Slot / Class No	:	E21+E22+E23 / 0756
Time	:	1½ hours	Max. Marks	:	50

Answer ALL the Questions

Q.No.	Question Description	Marks

PART - A (30 Marks)

1 (a) Write an algorithm, pseudo code and draw flow chart for the following scenario: Suppose, you are going to the market with Rs. 2000. From a shop you purchases 5.0 kg sugar priced Rs.50.0 per kg, 3 kg Rice priced Rs.100.0 per kg, 10 units of chocolates priced Rs.10 per kg, and 1.0 kg Tomato priced Rs. 50 per kg. You give the currency of Rs. 2000 to the shopkeeper. Find out the amount shopkeeper will return to you and also tell the total item purchased.   **10**

OR

(b) Write an algorithm to remove the duplicate elements from the array. Examples: **10**

Input : arr[] = {3, 4, 5, 3, 2}

Output : arr[] = {3,4,5,2}

new size = 4

2 (a) Write the output of following expressions: **10**
a=2*3+4%5-3//2+6
print a
b=5+3*4+6/6
print b
print a and b
print a or b
print a^b

OR

(b) Write the output of following expressions: **10**
a=20
b=24
c=0
c=a&b
print ("value of c is",c)

```
c=a|b
print ("value of c is",c)
c=a^b
print ("value of c is",c)
c=a<<3
print ("value of c is",c)
c=a>>3
print ("value of c is",c)
```

3   (a)   What is the worst time complexity of the following code: 10

```
function(int n)
{
  if (n==1)
    return;
  for (int i=1; i<=n; i++)
  {
    for (int j=1; j<=n; j++)
    {
      printf("*");
      continue;
    }
  }
}
```
Write a python program to make a list of 300 numbers (numbers from 1 to 300 both included). Print the list. Also print the list where the values are cube of numbers.

Expected Output:
Printed list-[1,2,3,4,5,6………300]
Cube numbers list:-[[1, 8, 27, 64, 125, 216]

OR

(b)   What is the worst time complexity of the following code: 10

```
function(int n)
{
  if (n==1)
    return;
  for (int i=1; i<=n; i++)
  {
    for (int j=1; j<=n; j++)
    {
      printf("*");
      break;
    }
  }
}
```
Write a python program to make a list of 50 numbers (numbers from 1 to 50 both included). Print the list. Also print the list where the values are square of numbers.

PART - B (20 Marks)

4   Make an array of random integers. Make a program to find a pair with highest   10
    addition from the entered array of integers.
    Examples :
    Input: arr[] = {1, 3,5, 9, 2, 8, 4}
    Output: {9,8}
    Input: arr[] = {-1, -5, -6, -3, 9, 0, -9}
    Output: {9, 0}

5   Write a python program to calculate the factorial of a number entered by user in   10
    following ways:-
    (a)   Without making function
    (b)   With user defined function
    (c)   using in built function
    (d)   With recursion

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