Department of Computer Science and Engineering

Exam: **Mid Term** Year: **2021** Trimester: **Fall** Course: **CSE 1111/CSI 121**

Title: **Structured Programming Language** Marks: **30** Time: **1 hr 45 min**

Answer all of the Questions. Numerical figures in the right margin indicate full marks.

1. (a) There are few errors in the following code. Rewrite the code correctly. Do minimum changes. Try not to introduce any new error. **[3]**

```
#Include<stdib.h>
int Main(){
    int a, b, float sum;
    scanf("%f%d", a, b);
    sum =+ a;
    print("%d", &sum);
    return 0;
}
```

(b) Find the outputs when input values of ***x*** are (i) 3, (ii) 10, (iii) 17 and (iv) 21, respectively. **[3]**

```
scanf("%d", &x);
switch (x){
        case 0: printf("Good"); break;
        case 3: printf("Morning");
        case 7: printf("Hello"); break;
        case 11: printf("World");
        case 17: printf("Best"); break;
        case 21: printf("Wishes!");
        default: printf("Invalid answer");
}
```

(c) Suppose, Team A and Team B are playing a football match. Write a program that will take two integers as input from the keyboard and print the outcome of the match. The two input integers represent the goals scored by Team A and Team B in order. The team with the higher score wins the match. If both scores are equal, the match is declared a draw. The program displays the result of the match accordingly. Few sample inputs and outputs are given below. **[4]**

Sample Input	**Sample Output**
0 0	Draw!
0 2	Team B wins!
3 2	Team A wins!

2. (a) Show the **manual tracing** of variables ***i, j*** and ***sum*** of the following program. **[3]**

```
#include<stdio.h>
void main(){
        float sum=0;
        for(int i=10, j=1; i>0; i=i+2, j++){
                sum += i-j;
        }
}
```

(b) Draw a flowchart that takes an integer ***n*** as input from the user and computes the sum of the following series. **[3]**

$$1^2 - 2^2 + 3^2 - 4^2 + \cdots upto\ n\ terms$$

(c) Write a program that takes an integer ***n*** as input from the user and prints the following pattern using nested loop. **[4]**

Sample Input, n	Sample Output
3	ABC AB A
5	ABCDE ABCD ABC AB A

3. (a) For the following program,
   (i) Show the manual tracing of variables ***n*** and ***m***. **[3]**
   (ii) Show the output. **[3]**

```
int main() {
        int arr1[5] = {1,2,3,4,5};
        int arr2[5] = {5,4,3,2,1};
        int arr3[5];

        int m=0, n=0;
        int i, j;
        for(i=0;i<5; i++) {
                for(j=0;j<5;j++) {
                        if(arr1[i]==arr2[j]) {
                                n++;
                                m = arr1[i];
                                arr3[i]=m;
                        }
                }
                // printf("Output  - 1")
                printf("%d : \n", n);
        }
        //printf("Output  - 2");
        for(i=4;i>=0; i--) {
                printf("%d : \n", arr3[i]);
        }
        return 0;
}
```

(b) Write a program in C to take input into an integer array of size 50 from user. Find and display the minimum element and its index. Name the array with your firstname. **[4]**

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