Course Code: **CS-2101L**

Course Title: Computer Organization and Assembly Language Lab

Class-Section:3A/3B **Time Allowed: 02 Hours**

Date: 01 July 2021 **Max Marks: 30**

Course Instructor: Muzammil Maqsood

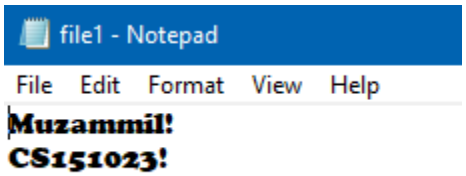
Student's Name: _____ **Reg. No: _____**

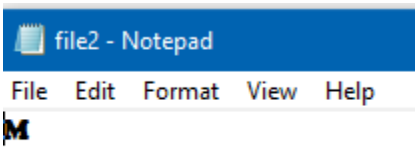
Note:

1. This exam consists of 8 printed pages. Before starting the exam, make sure that you have all pages in your copy of the question paper.
2. Attempt **all** questions.
3. Whatsapp, email and any other such chats are strictly not allowed.
4. Internet is allowed
5. Do follow submission guidelines as specified for assignments before.
6. Additional time is not allowed at all
7. Plagarism not allowed.

Q1)

Write code in Mips in which a user writes a string in a file1. The program must be able to read the first byte of the file1 and write the same first byte of the string in file2. (8 Marks)





Q2)

Convert the following code in MIPS. (7 Marks)

```
#include<stdio.h>
int main()
{
   int a=90;
   int b=70;
   printf("Enter the number\n");
   scanf("%d",&a);

   if(a>50)
   {
      printf("The value you entered is less than fifty\n");
      if(a<100)
         printf("The value you entered is less than hundred but greater than 50");
   }

   else
   {
      printf("The value is less than 50\n");
   }

   b=b-(-a)+(-9+4*a);
   printf("The value of B = %d", b);
   return 0;
}
```

SAMPLE OUTPUT

```
Enter the number
34
Value is less than 50

Value of B = 231
-- program is finished running --

Enter the number
55
Value is greater than 50
Value is less than 100 but greater than 50

Value of B = 336
-- program is finished running --

Enter the number
90
Value is greater than 50
Value is less than 100 but greater than 50

Value of B = 511
-- program is finished running --
```

Q3) Convert the following code in MIPS. (15 Marks)

```
#include<stdio.h>
int main()
{
  int array[3][3]={12,2,3,-2,4,-23,5,6,-10};
  int i=0;
  int j=0;
  int option=0;

  printf("Enter the option you want to choose\n");
  scanf("%d", &option);

if(option==1)
  {
     for(i=0; i<3;i++)
  {
    for(j=0;j<3;j++)
    {
        array[i][j]= array[i][j]*-1;
    }
  }

  for(i=0; i<3;i++)
   {
    for(j=0;j<3;j++)
    {
        printf(("\n%d\n"), array[i][j]);
```

```
    }
  }
}

else if(option ==2)
{
      for(i=2; i>=0;i--)
     {
           for(j=2;j>=0;j--)
           {
              printf(("\n%d\n"), array[i][j]);
           }
     }
}

else if(option==3)
{
  int c=0;
  for(i=0;i<3;i++)
  {
     for(j=0;j<3;j++)
     {
        c=c+array[i][j];
     }
  }
  printf("The sum of 2d array = %d",c);
}
```

```
else if(option==4)
{
   for(i=0;i<3;i++)
   {

      for(j=0;j<3;j++)
      {
         array[i][j]=array[i][j]*2;
      }
   }
  for(i=0; i<3;i++)
   {
     for(j=0;j<3;j++)
     {
         printf(("\n%d\n"), array[i][j]);
     }
   }
}
return 0;}
```

SAMPLE OUTPUT

```
Enter the option you want to choose
1

-12
-2
-3
2
-4
23
-5
-6
10
```

```
Enter the option you want to choose
2
-10
6
5
-23
4
-2
3
2
12

-- program is finished running --

Enter the option you want to choose
3
Sum =-3
-- program is finished running --
```

```
Enter the option you want to choose
4
24
4
6
-4
8
-46
10
12
-20
```