BIL – 200
MIDTERM-1 (substitute)

Duration: 100 min’s. Course slides are allowed.

1. (15 pts) Debug the following program and write it down in an error-free manner:

```c
#include<stdio>

void main(void)
{
    int i, j;
    int k;
    char ch, str[100];
    float a; b=1.0;

    printf('Enter a character:');
    scanf('%c', &ch);
    printf('Enter a string:');
    scanf('%s', &str);
    str[10]=ch;
    printf('Enter two integers:');
    scanf('%f %f', i, j);
    printf('The multiplication is %f', i*j);
    if (i>0)
        for (k=1; k<=i; k++)
            b*=k;
    a=b;
    else if (i=0)
    {
        a=1.0;
        printf('Input is too small.\n');
    }
    else
    {
        a=-1.0;
        printf('Input is negative.\n');
    }
}
```
2. (25 pts)

```c
int i = 1;
while ( i < 5 )
{
    ++i;
    printf("%d\n",i);
}
```

About the above program;

a) What is the screen output?
b) Write a for loop that does the same thing.
c) Write a do-while loop that does the same thing.
d) What would happen if we wrote while(i = 5) in the loop?
3. (20 pts) Write the following program using `if-else`'s. Make sure that it works “exactly” the same way.

```c
int i, sum = 0;
scanf("%d", &i);
switch (i)
{
    case 1:
    case 2:
        sum++;
        break;
    case 3:
    case 4:
        sum--;
    case 5:
        break;
    default:
        printf("%d\n", sum);
        break;
}
```
4. (25 pts) Obtain the outputs of the following small program segments.

a) for(i=1, j=3; i<=9; i+=3, j++)
   {
     if(j==7)
       continue;
     j++;
   }
   printf("%d %d\n",i,j);

b) for(i=0; i<10; ++i)
   if(i%2 == 0)
     putchar('A');
   else
     putchar('B');

c) for(i=0; i<5; ++i, putchar('n'))
   for(k=0; k<5; k++)
     putchar('$');

d) int x=0;
   while(x++<6)
   {
     for(y=-5; y<x; y+=x)
       putchar('x');
     putchar('n');
   }

e) for(i=0; i<23; i++)
   {
     for(k=0; k<i; k++)
       putchar(' ');
     putchar('A');
   }
5. (15 pts) Write a C program which “produces” the below text as its “screen output”. The printed text on the screen will be:

```c
char my_string[1000];
int i,j=1;
scanf("%s",my_string);
scanf("%d %d",&i,&j);
printf("%d
%3d
",i,j);
```