Name: KEY   **Id#**

ICS 103, Term 092

Computer Programming in C
Quiz# 2

Date: Sunday, April 11, 2010

Q1. Determine the output of the following program:

```
#include <stdio.h>
int main(void) {
int number, digits, sum;
digits=sum=0;
number=12345;
do {
  sum+=number%10;
  number=number/10;
  digits++;
}while(number>0);
printf("%d\n%d\n",digits,sum);
return 0;
}
```

```
5
15
```

Q2. Rewrite the following shaded part using while loop instead of for loop:

```
#include <stdio.h>
int main(void) {
int i, j, p;
for(i=1, j=1, p=0;i<50 && j < 20;i*=2, j++)
  p+=i+2*j;
return 0;
}
```

```
 i=1;
 j=1;
 p=0;
 while (i<50 && j < 20){
     p+=i+2*j;
     i*=2;
     j++;
 }
```

Q3. The value of π can be determined by the series equation:

$$\pi = 4\,(1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \frac{1}{11} + \frac{1}{13} - \ldots)$$

Write a program that takes the **number of terms** as input and returns an approximation of the value of π for the given number of terms.

```c
#include <stdio.h>
#include <stdlib.h>


int main(void)
{

int i,n;
double pi;

printf("Enter number of terms: ");
scanf("%d",&n);

for(i=0;i<n;i++){
  if (i%2==0)
    pi += 1.0/(2*i+1);
  else
    pi -= 1.0/(2*i+1);
}

pi *= 4;

printf("PI = %f\n",pi);


system("pause");
return 0;
}
```