ITEC113 – Term Project

Q1)Write a statement or a set of statements to accomplish each of the following tasks:

a) Sum the odd integers between 1 and 99 using a for statement. Use the unsigned integer variables sum and count.
b) Print the value 333.546372 in a field width of 15 characters with precisions of 1, 2, 3, 4 and 5. Left justify the output. What are the five values that print?
Write printf statements to produce following below:
// prints 333.5
// prints 333.55
// prints 333.546
// prints 333.5464
// prints 333.54637

c) Print the integers from 1 to 20 using a while loop and the counter variable x. Print only five integers per line. [*Hint:* Use the calculation x % 5. When the value of this is 0, print a newline character, otherwise print a tab character.]

d) Repeat Exercise (c) using a for statement.

Q2)
Find the error in each of the following. (*Note:* There may be more than one error.)

a)
```
for (a = 25, a <= 1, a--); {
   printf("%d\n", a);
}
```

b) The following code should output all multiples of 3 from 1 to 100:
```
for (int x = 3; x <= 100; x%3 == 0; x++ )
{
  printf("%d\n", x);
}
```

c)
```
x = 1;
while ( x <= 10 )
{
     printf("%d\n", x);
}
```

Q3)
State which values of the control variable x are printed by each of the following for state- ments:

a)
```
for (x = 20; x >= 3; x -= 3) {
   printf("%u\n", x);
   }
```

b)
```
for (x = 7; x <= 27; x += 5) {
   printf("%u\n", x);

  }
```

c)
```
for (x = 2; x <= 20; x += 4) {
   printf("%u\n", x);
  }
```

d)
```
for (x = 30; x >= 15; x -= 6) {
   printf("%u\n", x);

  }
```

e)
```
for (x = 22; x >= 2; x -= 5) {
    printf("%d\n", x);

}
```

Q4) What does the following program do?

```
#include <stdio.h>
int main(void)
{

   int x, i, j;
   // prompt user for input
   printf("%s", "Enter an integer in the range 1-20:");
   scanf("%d", &x); // read values for x
   for (i = 1; i <= x; i++) { // count from 1 to x

      for (j = 1; j <= x; j++) { // count from 1 to x
         if (j==i)
             printf("%c", '@'); // output @
         else
             printf("  ");
      } // end inner for
      printf("\n");
   } // end outer for

} // end of main
```

Q5)

Assume `i = 5`, `j = 7`, `k = 4` and `m = -2`. What does each of the following statements print?

a) `printf("%d", i == 5);`

b) `printf("%d", j != 3);`

c) `printf("%d", i >= 5 && j < 4);`

d) `printf("%d", !m && k > m););`

e) `printf("%d", !k || m);`

f) `printf("%d", k - m < j || 5 - j >= k);`

g) `printf("%d", j + m <= i && !0);`

h) `printf("%d", !(j - m));`

i) `printf("%d", !(k > m));`

j) `printf("%d", !(j > k));`

Q6)Write a C program that will display following

```
It prints first four rows of Floyd's triangle as:
1
2 3
4 5 6
7 8 9 10
```

Q7) Write loops that perform each of the following one-dimensional array operations:

a) Read the 20 elements of double array `sales` from the keyboard.

b) Add 1000 to each of the 75 elements of double array `allowance`.
c) Initialize the 50 elements of intger array `numbers` to zero.
d) Print the 10 values of integer array `GPA` in column format.

Q8)
Write a C statement to accomplish each of the following tasks.

a) Define variables `sum` and `x` to be of type `int`.
b) Set variable `x` to `1`.
c) Set variable `sum` to `0`.
d) Add variable `x` to variable `sum` and assign the result to variable `sum`.
e) Print `"The sum is: "` followed by the value of variable `sum`.

Q9)
Identify and correct the errors in each of the following. [*Note:* There may be more than one error in each piece of code.]

a)
```
if ( sales => 5000 );
   pritf( "Sale is greater than or equal to $5000" );
else
   printf( "Sale less than $5000 " );
```

b)
```
int x = 1, product = 0;
while ( x <= 10 )
{

   product *= x;
 ++x;
}
```

c)
```
While ( x <= 100 )
   total =+ x;
   ++x;
```

d)
```
while ( y < 10 )
{

   printf( "%d\n", y );
}
```

Q10)What does the following program print?

```
1  #include <stdio.h>
2
3  int main( void )
4  {
5     int y;
6     int x = 1;
7     int total = 0;
8
9     while ( x <= 10 ) {

10       y = x * x * x;
11       printf( "%d\n", y );
12       total += y;
13       ++x;
14    } // end while
15
16    printf( "The total is %d \n", total );

17 } // end main
```