Notre Dame University – Louaizé
Faculty of Natural and Applied Sciences
Computer Science Department

# CSC 212 – EXAM I

## PART I – TRUE/FALSE QUESTIONS ( 9 Pts: 1.5 pts for each Question )

For the following six questions circle the letter "T" or the letter "F" to indicate whether or not each of the statements is true or false, respectively.

T (F) : The value of `cout<<9/2;` will display 4.5

(T) F : It is a compile-time error to use double types with the modulus % operator.

(T) F : Division by 0 causes an error at run time.

T (F) : cout <<"\t" prints a new line .

(T) F : The initialization, the loop continuation test and the increment in the for repetition structure and can be omitted in the parenthesis of the for header.

(T) F : When using a counter-controlled repetition, failure to correctly increment/decrement the counter causes an infinite loop causing a run time error.

## PART II – MULTIPLE CHOICE (10 Points: 2 points for each Question)

For the following five questions, select the answer that fits best.

1. How many times does `cout << i << endl;` get executed?

```
int i = 1;
do
   cout << i << endl;
while(i++<=3)
```

   a. 3 times.
   (b) 4 times.
   c. 5 times.
   d. 6 times.

2. What will the following code segment display?

```
int c = 1;
cout << c++ * 3;
```

   a. 1
   (b) 3
   c. 6
   d. 9

3. What does the `break` statement do?
   a. Causes immediate exit from a `while`, `for`, and `do/while` repetition structure.
   (b) Causes immediate exit from a *switch* selection structure
   c. Replaces the condition in a for loop header
   d. All of the above.

## PART V – PROGRAMMING PROBLEM (27 + 18 Points)

1. Write a complete C++ program that asks the user to enter the type of each stock item in a pet store (assume types that can be entered are 1=feeding, 2=bedding, 3=medication). *The program should allow the user to enter as many stock item types as he wants and allow him to quit when he wants.*
The program must calculate the total number of items **and** the total number for each type of item. The program must display the total number of items and the total number for each type of item.

The program should also find which item type (feeding/bedding/medication) occurs the most and display it for the user.

**Important Note**: The program should rely on a ***sentinel value*** to signal that the user has finished entering types.

*Use the space below to write your answer. You may use the back of the page if necessary.*

```
#include <iostream>
using namespace std;
int main()
{
    int m, feeding, bedding, medication;
    while (m != -1){
    cout << "Enter type of stock, -1 to end";
    cin >> m;
    if (m==1);
    cout << feeding;
    if (m==2);
    if cout << bedding;
    if (m==3);
    cout << medication;
    Total = feeding + bedding + medication
    Largest = feeding
    if (bedding > Largest)
    bedding = Largest;
    if (medication > Largest)
    medication = Largest
cout << "The total is " << Total << "\n";
cout << "feeding is:" << feeding << "\n";
cout << "bedding is:" << bedding << "\n";
cout << "medication:" << medication << "\n";
cout << "Largest is:" << largest << endl;
return 0;
}
```

a complete C++ program which enables the user to input an integer value into
ble x.
rogram should display the text "ONE", "TWO",..., "NINE", "OTHER" if x is 1, 2
other, respectively.
, if x is odd (i.e. 1,3,5 ... meaning there **will be** a non-zero remainder if x is divide
d x is a multiple of 3 (i.e. it **will have no** remainder if divided by 3), print "This v
d and it is a multiple of 3"; otherwise, if x is even and it is a multiple of 4, print "
e is even and it is a multiple of 4"

*Use the space below to write your answer. You may use the back of the page if neces*

#include <iostream>
using namespace std;
main()
{
int x;
cout << "enter x";
cin >> x;
if (x==1)
cout << "one";
if (x==2)
cout << "two";
if (x==3)
cout << "three";
if (x==4)
cout << "four";
if (x==5)
cout << "five";
if (x==6)
cout << "six"

(10)

## PART IV – SHORT PROBLEMS (15 Points)

1. Rewrite the following for loop into a while loop without a break statement. (8 Points)

```
#include <iostream>
using namespace std;

int main()
{
    for (int i = 0; i <= 41;
        cout << i << endl;
        if(i==20)
          break;
    }

    return 0;
}
```

Answer:

```
# include <iostream>
using namespace std;
int main()
{
int i=0;
while (int i<20){
cout << i << endl;
  i += 4
}
return 0;
}
```

2. Rewrite the if structure using a switch structure. (7 Points)

```
int command,x,y;
cout << "Enter Command";
cin >> command;
if (command == 1)
{     cin >> x;
      cin >> y;
}
else if (command == 2 || command == 3)
        cout << x*y;
     else
        cout << "Invalid Command" << endl;
```

Answer:

```
int command, x, y;
while (int command)
Switch (command){
case 1;
cin >> x
cin >> y
continue;
case 2;
cout << x * y;
continue;
case 3;
cout << x * y
continue;
default;
Cout << "Invalid Command" << endl;
```

4. Which of the following is a double selection statement ?
   a- if
   b- if...else
   c- switch
   d- *all of the above*

5. What value will x contain after this code is executed?

```
int x = 3;
if( x == 3 )
    ;
x = 0;
if( x == 2 )
   x++;
else x += 2;
```

a. 0
b. 1
c. 2
d. 3

## PART III – WHAT IS THE OUTPUT PROBLEMS (21 Points)

1. What is the output of the following program when it is executed? (7 Points)

```
#include <iostream>
using namespace std;

int main()
{
      int a = 4, b = -8, c = 20;

      if (a < 4 || c >= 20)
            cout << a << "\t" << c << "\n";

      else
      {
            cout << c << "\t" << a << "\n";

            a=3;b+=2;
            if (b < 0 && a>=4)
            cout << a;
            else
            if (a < 4)
               cout << b;

      }
   return 0;
}
```

Answer:

4 - - - - - 20

5 spaces

7

2. What is the output of the following program when it is executed? (7 Points)

```
#include <iostream>
using namespace std;

void main()
{
   while (int c = 4; c >= 1; c++) {
      switch(c) {
         case 1:
            cout << "Test 1 \n";
            break;
         case 2:
            cout << "Test 2 \n";
         case 3:
            cout << "Test 3 \n";
            break;
         default:
            cout << "Test 4" << endl;
      }
   }
}
```

Answer:

Test 4 it always repeat Test 4
Test 4
Test 4
:
:
:
∞ Test 4

7

3. What is the output of the following program when it is executed? (7 Points)

```
#include <iostream>
using namespace std;

void main ()
{
    int y=0 ;

    while(y<10)
    {
        cout <<(y%2 ? "T" : "F");
        y+=2;
        cout <<endl;
    }
}
```

5 Times

Answer:

T
T
T
T
T

0