# Sample Midterm Exam

CMPT-101 45 minutes

This is a closed book exam. Read each question carefully before answering it, and list any important assumptions you make. Answer all questions.

Name:

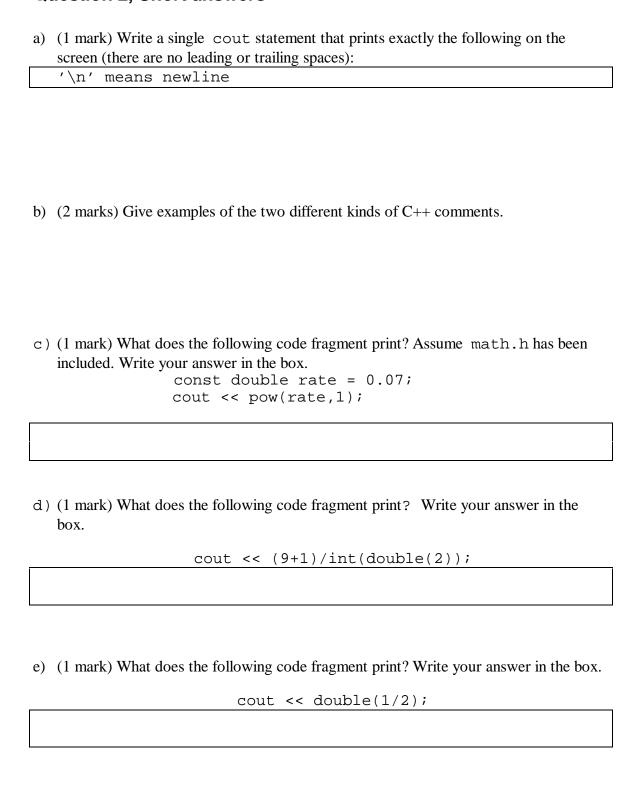
Student #:

Circle one: CMPT-101 CMPT-104

Question	Mark
Q1	/4
Q2	/11
Q3	/5
Q4	/5
Q5	/15
Total	/40

(4 marks) Write a C++ function named abs\_val that returns the absolute value of an int passed to it by value. Do not use any special library functions.

### **Question 2, Short answers**



f) (1 mark) What does the following code fragment print? Write your answer in the box.	
<pre>cout &lt;&lt; double(1)/2;</pre>	
g) (1 mark) What does the following code fragment print? Write your answer in the box.	
<pre>cout &lt;&lt; 1/double(2);</pre>	
h) (1 mark) What does the following code fragment print? Write your answer in the box.	
cout << 1/2;	
i) (1 mark) What is the difference between a function and a function prototype?	

j) (1 mark) What is a default constructor?

(5 marks) What does the following C++ program print to the screen? Write your answer in the box below.

```
#include <iostream.h>

void swap(int & a, int b)
{
    int temp = a;
    a = b;
    b = temp;
}

int main()
{
    int a = 4;
    int b = 2;
    int c = 5;

    swap(a,b);
    swap(b,c);

    cout << a << '\n' << b << '\n' << c;
}</pre>
```

(5 marks) Suppose the following letter grade class has been defined globally in a program:

```
class Grade {
private:
   char grade;

public:
   Grade(char in_grade);
   void print();
};

Grade::Grade(char in_grade)
{
   grade = in_grade;
}

void Grade::print()
{
   cout << grade;
}</pre>
```

Write a main function that reads one character from the keyboard, creates a Grade object containing that character, and then have the object print itself. Assume iostream.h has been included.

```
#include <iostream.h>
void get_choice(char & ch)
```

b) (5 marks) Write a second version of get\_choice that uses the function return mechanism to return the value of ch (instead of a reference parameter). Note that you need only make a few minor modifications to the function in part a), assuming it is correct. Name this second function get\_choice2, and give a 1-line example of how you would call it in a program.

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