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Section: **01** (Sanscartier) / **03** (Olorunleke) / **05** (Koehn) (circle one)

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CMPT 116 Midterm Examination

November 3, 2005

Total Marks: 60 marks

CLOSED BOOK

Time: 60 Minutes

PLEASE ANSWER QUESTIONS 1 through 15 ON THE PROVIDED OPTIC SCAN SHEET.

Darken with pencil (HB preferred) the circle that corresponds with your answer for each of these questions. Be sure to include your name and student number on the top of the OPTIC SCAN sheet (and on the top of this question sheet).

THE REMAINDER OF THE QUESTIONS, QUESTIONS 16 through 18, ARE TO BE ANSWERED ON THIS QUESTION SHEET.

If you don't have enough space, write on the back of the page, indicating clearly that your answer is continued there. Be sure to pace yourself throughout the exam.

I. True / False Questions: (2 marks each) TO BE ANSWERED ON THE OPTIC SCAN SHEET.

ANSWERS: (A) TRUE (B) FALSE

1. In C++, variable names are case sensitive (e.g., `count` is different from `Count`), while function names are not case sensitive (e.g., `computeaverage ()` is the same as `ComputeAverage ()`). *F*
2. A function that has a return value can always be rewritten as a void function by adding one additional parameter. *F*
3. Given `x=-5` and `y='x'`, the following condition will evaluate to 1:
T `(x == y || x <= -5 && !(y == x))`
4. When evaluating a variable within a function, C++ first looks locally, within the function, for the variable definition. Then, if it doesn't find the definition locally, it looks within the variable definitions of the calling function.
F

5. Although bad programming style, the following is a legal statement in C++:

```
if (denominator==0)
    ;
else
    result = numerator/denominator;
```

6. Suppose the variable definitions have been made: `double n1=50.0` and `double n2=100.0`. The following code will display the average of these two variables.

```
cout << (n1+n2)*1/2;
```

7. When performing an implicit type conversion from floating point (e.g., float, double) to integer, C++ always truncates the floating-point value by dropping the digits after the decimal point. (E.g., 2.68 would be converted to 2).

8. In C++, expressions involving a relational operator (e.g., `>`, `>=` ...) evaluate to an integer value of `1` if *true*, and `0` if *false*.

9. The message, **-99 is false**, is displayed to the console window after the following code segment has been executed.

```
if (-99)
    cout << "-99 is true";
else
    cout << "-99 is false";
```

10. Assuming that a function `fact()` has been constructed and tested with the prototype:

```
long int fact(int X);
```

Formula for approximating e : $e = 1 + 1/1! + 1/2! + 1/3! + 1/4! + \dots$

The following code segment generates an approximation for e with N terms. Note: $0! = 1$.

```
int e = 0;
for (int i=0; i<N; i++)
    e = e + 1/fact(i);
```

II. Multiple Choice Questions: (2 marks each) TO BE ANSWERED ON THE OPTIC SCAN SHEET.

*** SELECT THE SINGLE BEST CHOICE FOR EACH OF THE FOLLOWING QUESTIONS ***

11. Which of the following is NOT a valid statement in C++?

- A) `cout << "\nPlease enter the cost: ";`
- B) `result = a * pow(4.67, 2);`
- C) `4 = z;`
- D) `cin >> 33.6 >> weight;`
- E) Both C) and D) are not valid statements.

12. Which of the following are valid program statements that will define (declare) two variables, `x` and `y`, and initialize both variables with a value of 3?

- A) `int x,y=3;`
- B) `int x=3, y=3;`
- C) `int x=y=3;`
- D) Both B & C.
- E) All of the above can be used.

13. What is the value of variable `result` after the following code segment has executed?

```
int x=5;
int result=0;
do
{
    result = result + x;
    x=x*2;
} while (x<5);
```

- A) 0
- B) 5
- C) 10
- D) 15
- E) None of the above

