**Homework 2**

**ECE 309 Fall 2019**

**Due: September 11, 2019**

Upload an electronic copy of your answers to Moodle under HW2.

These problems are worth 85 points total, but the grade will be reported as a percentage in Moodle.

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# **1. Work the following ZyLabs for review of C and some new C++ concepts**

* [10 points] ZyLab 5.20
* [10 points] ZyLab 6.18
* [10 points] ZyLab 6.19
* [10 points] ZyLab 7.20
* [10 points] ZyLab 7.27

# **2. Interpret the execution of C++ objects**

Consider the following C++ code:

#include <stdio.h>

class A {

private:

class B {

public:

void print(char c=’B’) { printf(“%c”,c); }

~B() { print(‘h’); }

};

B x;

public:

A() { x.print(); }

void p(int a=1) { printf(“%x”,a); }

void p(char c, int n=5) { for(int i=0; i<n; i++) x.print(c); }

};

int main()

{

A a;

a.p(10);

a.p(‘a’);

return 0;

}

a. [5 points] What’s the output of this code?

b. [10 points] For each part of the output, identify which member function of which object printed it. If multiple objects were involved, please identify them all and their member functions.

# **3. Construction and destruction of objects**

[20 points] For the following program, identify all of the objects that are constructed and destructed. Also, identify where in the code the destruction happens. You may ignore copy constructed objects for this problem.

class A {

int x;

public:

A(int a\_x=0) {x = a\_x;}

};

class B {

A a;

public:

B(A a\_a=0) {a = a\_a;}

~B() {}

};

B globalb(A(5));

int main() {

A localA = 1;

B localB;

B \* heap\_b = new B;

A \* heap\_a;

return 0;  
}