First Chocolate Code-Off for CISC220 Fall 17

Rules:

1. **Create one answer sheet with all group member names on it! (to be given to another group for grading No running code (you may use class notes)**
2. **You may ask yes/no questions**
3. **First Place: 3 E.C. pts on Exam, 2nd Place: 2 E.C. pts, 3rd Place: 1 E.C. pt PLUS CHOCOLATE**

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P1: Given the following code, what is printed

```
string s1 = "mug";
string *s2= &s1;
s1 = "wump";

cout << *s2 << endl;

//prints _____

*s2 = "glub";
cout << s1 << endl;

//prints _____
```

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P2: There can be more than one constructor per class. This is known as _____ (and applies to any case in which there is more than one method with the same name per class). When there are more than one constructor per class, the different contstructors are distinguished by their _____

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P3: Given the following function, what is printed out?

```
void intfunc() {
      //address of a: 0x64fed8
      //address of b: 0x64fed4
      //address of d: 0x64fecc
      int a = 12;
      cout << &a << endl;  _____
      int *b = &a;
      cout << b <<  endl;  _____

      cout << &b << endl;   _____
      int *d = b;
      cout << d << endl;   _____
      *d = 4;
      cout << a << endl;    _____

      cout << *b << endl;   _____
}
```

****

P4: Fill in the blanks below

```
class state {
public:
	string name;
	string *counties;
};

void change(state *z, int i);

int main() {

	state x;
	x_____________name = "DE";    //Dot(D) or Pointer Dot (PD)?

	x_____________counties = new string[3]; //Dot(D) or Pointer Dot (PD)?

	state *y = new state;
	y_____________name = "RI";     //Dot(D) or Pointer Dot (PD)?

	y_____________counties = new string[5]; //Dot(D) or Pointer Dot (PD)?

	state *z = new state[4];
	z[0]_____________name = "NJ"; //Dot(D) or Pointer Dot (PD)?

	z[0]_____________counties = new string[21]; //Dot(D) or Pointer Dot (PD)?

	//call the function change so that x's name field changes to "HI" (x, &x, *x, other)
	change(_____,5);

	//call the function change so that y's name field changes to "HI" (y, &y, *y, other)
	change(_____,5);

	//call the function change so that z[0]'s name field changes to "HI" (z[0], &z[0],  *z[0], other)
	change(_____,5);

	return(0);
}

void change(state *z, int i) {
	z->name = "HI";
	z->counties = new string[i];
}
```

****

P5: Given the following, what is printed out?

```
class Hobbit{
public:
        string fname;
        string book
};
void changeHobbit(Hobbit x) {
        x.fname = "Meriadoc";
}
int main() {
        Hobbit H1;
        H1.fname = "Frodo";
        changeHobbit(H1);
        cout << H1.fname << endl;  // what is printed here?
        return 0;
} //main
```

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P6: The following code won't work (it's a permissions thing). Fix it by adding the appropriate line: (NOTE: Do Not move the public: line or add another public: line)

```
class Wav {
      _____________________________________
      int freq;
      int amp;
  public:
      Wav(int x, int y) {
            freq = x;
            amp = y;
      }
};
class Filt {
      int dur;
  public:
      Filt (int len) {
            dur = len;
      }
      void AfterFilt(Wav w, int newfreq, int newamp) {
            w.freq = newfreq;
            w.amp – newamp;
      }
};
int main () {
  Wav a(32,12);
  Filt b(125);
  b.AfterFilt(a,10,15);
  return 0;
}
```

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P7: Given the following code, what is printed out?:

```
class MugWump {
	int x;
	string y;
public:
	MugWump(int i);
	void Action();
	void printIt();
};
MugWump::MugWump(int i) {
	x = i;
	y = "";
}
void MugWump::Action() {
	int k = x;
	while (k > 0) {
		char c = '0' + k%2; //quick and dirty way of converting int to char
		y = c + y;
		k = k/2;
	}
}
void MugWump::printIt() {
	cout << x <<": " << y;
}

int main(){
	MugWump m(13);
	m.Action();
	m.printIt();

}
```

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P8: Given the following code, what is printed out?:

```
int main() {
        // indices:  0 1  2  3  4  5  6  7 8 9 10 11 12 13 14 15 16
        char a[] = {‘a','h',‘p',‘o','r','e',‘c',‘a',‘l',‘t','b‘ ,'r', ‘y‘ ,‘p', ‘s',  ‘e‘ ,‘k'};
        int a_len = 17;
        char *b = arrfunc(a,a_len);
        for (int i = 0; i < a_len; i++) {
                cout << b[i] << " ";
        }
        cout << endl;
        return 0;
}

void arrfunc2(char *arr, char arr2[], int x) {
        for(int i = 0; i< x; i++) {
                arr2[i] = arr[i];
        }
}
char *arrfunc(char arr[], int &x) {
        int len = 1;
        int size = 0;
        int ct = 0;
        while (ct < x) {
                ct += len*2;
                size+=len;
                len += 1;
        }
        char *arr2 = new char[size];
        len = 1;
        size = 0;
        ct = 0;
        while (ct < x) {
                arrfunc2(&arr[ct],&arr2[size],len);
                ct += len*2;
                size+=len;
                len+=1;
        }
        x = size;
        return arr2;
}
```

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P9: Given the following code, what is printed out?:

```
class MPlanet{
	int x;
	int y;
	char **m;
public:
	MPlanet(int a, int b) {
		x = a;
		y = b;
		m = start();
		make();
		printit();
	}
	char **start() {
		char **tmp;
		tmp = new char *[x];
		for (int i = 0; i < x; i++) {
			tmp[i] = new char[y];
		}
		return tmp;
	}
	void make() {
		for (int i = 0; i < x; i++) {
			for (int j = 0; j < y; j++) {
				if ((i ==j) || (i ==(y-j-1))) {
					m[i][j] = '*';
				}
				else {
					m[i][j] = ' ';
				}
			}
		}
	}
	void printit() {
		for (int i = 0; i < x; i++) {
			for (int j = 0; j < y; j++) {
				cout << m[i][j]<<" ";
			}
			cout << endl;
		}
	}
};

int main(){
	MPlanet m(5,5);
	return 0;
}
```

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P10: Given the following class definition (using syntax 1):, clearly show which parts would end up in each of 3 files using syntax 3. Name the 3 files appropriately:

```
#include <iostream>
#include <stdlib.h>
using namespace std;

class CISC {
    string classname;
    int classnum;
  public:
    CISC(string x, int y) {
        classname = x;
        classnum = y;
    }
    CISC() {
        classname = "Data Structures";
        classnum = 220;
    }

    void printCISC()
    {
       cout << "CISC " << classnum<<":"<<classname<<endl;
    }
};

int main() {
    CISC obj1;
    obj1.printname();
    return 0;
}
```

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P11: Given the following struct definition, what is printed out?:

```
struct Info {
        string a;
        string b;
        int c;
        Info *next;
};
int main() {
        Info *first = new Info({"bro","k","en",NULL});
        first->next = new Info({"sp","lu","rge",NULL });
        Info *tmp = first->next;
        tmp->next = new Info({"stur","ge","on",NULL });
        for (Info x= first; x != NULL; x = x->next) {  //What is printed here?
                cout << x->b;
        } //for
        cout << endl;
}//main
```