

## HW #8

Pdf file only, with heading:

HW #8

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Due: 11:00 pm, Sunday Nov. 4, 2018 at Google Classroom

1. Optional to make up for the last problem of Homework 7. If you prefer, redo the last problem in Homework 7 below. If you do better here, your Homework 7 score is updated. If you do not do it here or do it but not better, your Homework 7 score will not be changed.

Consider the following program with only the variable declarations shown. For each statement below, specify whether it is true or false and explain why.

```
int x;
void alpha(int a){
    int b;
}

void beta() {
    static int k;
}

void gamma(int x) {
}

int main(){
    int x, y, z;
    {
        int y, z;
    }
}
```

- a. (7 pts) Function alpha can access the external variable x
- b. (7 pts) Function main has access to the static variable k declared inside function beta
- c. (7 pts) In the inner block of the main function, the block variable y hides the local main variable y
- d. (7 pts) Function beta is the only function that can access global variable x
- e. (6 pts) In function main, local variable x is not accessible inside the inner

block

2. (80 pts) Write a single C statement for each of the following (10 pts each).
- Declare an integer called total, initialize it to 10

**int total = 10;**

- Declare a pointer to an int called ptr and set it to point to the above variable total

**int \*ptr = &total;**

- Set the value of the above variable total to 20 using pointer ptr

**\*ptr = 20;**

- Print the memory address of total using total and the specifier %p (see class notes)

**printf("%p", &total);**

- Print the memory address of total using ptr and the specifier %p

**printf("%p", ptr);**

- Define a new pointer qtr and let it point to total using ptr

**int \*qtr = ptr;**

- Make qtr point to integer variable result (assume result has been declared)

**qtr = &result**

- Double the value of result using qtr

**\*qtr \*= 2;**

3. (20 pts) Write a single statement to do each of the following:

- (6 pts) Assign character 'Z' to the variable pointed to by char pointer answer

**\*answer = 'Z'**

- (7 pts) Change the value of variable pointed to by char pointer choice to the next character

**\*choice += 1;**

- (7 pts) Print the value of char pointer called answer

**printf("%c", \*answer)**