CPSC 1070 – Programming Methodology, Prof. House
Sample First Midterm Exam, 50 Minutes, Closed Book, Notes

These are example short answer questions. The midterm will have 10 short answer questions, each worth 4 points.

1. Does this function ever finish? If so, under what conditions, and what does it return? Explain.

```
int foo(int n){
   if(n > 100)
      return n – 1;
   else
      return foo(n + 1);
}
```

2. Write a C procedure that swaps the contents of its two integer actual arguments.

3. Using the following C struct definition for a 2-dimensional point, write a struct definition for a triangle.

```
// 2–Dimensional Point struct
typedef struct _point{
    float x, y;           // point coordinates
} Point;

// Triangle struct
```

4. What does the following code fragment print?

```
int i = 4;
printf("%d, %d, %d\n", i++, ++i, i);
```

5. What does this code fragment do? Explain briefly.

```
int table[5] = {5, 4, 3, 2, 1};
int *ptr;
int s = 0;
for(ptr = table; ptr < table + 5; ptr++)
  s += *ptr;
```

These are example long answer questions. The midterm will have three long answer questions, each worth 20 points.

6. Write down what the following program will output.

```
float y = 2.5;
float z = 1.5;

float fun(float x, float *y){
   *y = x;
   x = 2 * x;

   printf("%f, %f, %f\n", x, *y, z);

   return x + z;
}

int main(){
   float x = 1.25;
   float y = 2.25;

   printf("%f, %f, %f\n", x, y, z);

   z = fun(y, &x);

   printf("%f, %f, %f\n", x, y, z);

   return 0;
}
```

7. Complete the following C procedure. The procedure should read strings from the file given by the `filename` parameter, and store them in an array that is returned as the value of the function. The procedure should return with `count` updated to match the total number of strings in the file.

```
char **build_list(char *filename, *count) {


}
```