Peer Instruction #11:
C Input, Output, and Structs

What is the output of the C code fragment shown below?

A. hello 2 0x1a 5.68

B. Hello 2 0x1a 5.68

C. Hello 50 0x1a 5.68

D. Hello 2 0x26 5.68

E. Hello 2 0x1A 5.67

```
char *s = "Hello";
char c = 50;
int x = 26;
float f = 5.6789;
printf("%s %c 0x%02x %.2f\n", s, c, x, f);
```

printf statement

What is the value of *count* after the C code shown below?

```
char *date = "4/24/2014:08:23am";
int m,d,y,h,n;
int count = sscanf(date,
  "%d/%d/%d:%d %dam",
  &m,&d,&y,&h,&n);
printf("%d\n", count);
```

A. 0
B. 1
C. 4
D. 5
E. 17

scanf statement

What is the value of *file* after the C code below if the file does not exist?

File *file = fopen("data.txt", "r");

A. A positive integer that is the file pointer
B. A NULL file pointer (probably 0)
C. An invalid file pointer (probably -1)
D. The file variable never gets assigned
E. Code causes a segmentation fault

fopen statement

Which of the lines correctly initializes the struct in the C code shown below?

```
1: struct Data { int i; float f; char c; };
2: struct Data ds;
3: ds.i = 12; ds.f = 3.4; ds.c = '&';
4: ds->i = 12; ds->f = 3.4; ds->c = '&';
```

A. Line 3

B. Line 4

C. Lines 3 or 4

D. Neither 3 nor 4

struct access

Which of the typedefs shown below correctly introduces a new type?

A. #typedef uint16 unsigned short
B. #typedef unsigned short uint16
C. typedef uint16 unsigned short
D. typedef unsigned short uint16
E. None of the above

struct access

Which of the following portably allocates an array of 16 floats?

A. float *f = (float *) malloc(16);
B. float *f = (float *) malloc(64);
C. float *f = malloc(16 * sizeof(float));
D. float *f = malloc(16 * sizeof(*f));
E. float f[16] = (float *) malloc(sizeof(float));
F. Shouting "*Floatus mallocus!*"

struct access