

CSSE 132 – Introduction to Systems Programming
 Rose-Hulman Institute of Technology

Quiz 8 String & Struct

Name (Print): _____ RHIT Username: _____

1. How is a string (a sequence of text) represented/stored in C?

A string is 1) an array of 2) that is terminated by .

2. What is the difference between 'a' v.s. "a"?

'a' is a , which is a number between and .

"a" is a stored as .

3. Given the coding below,

```
1 char s[3] = {'H', 'i', '\0'};
2 char* s1 = "Hi";
```

Is the statement `s == s1` true? Why?

4. what is the print out from the following code?

```
1 char* s = "hello";
2 printf("%s", s + 2);
```

The screen print out is:

5. What does the following code print out?

```
1 #include <stdio.h>
2
3 int main() {
4     char array[5];
5     char* p = array;
6     for(int i = 0; i<4; i++){
7         *p = i + '0';
8         p++;
9     }
10    *p = '\0';
11    printf("%s", p-3);
12 }
13
```

The screen print out is:

6. Write C code to define a struct named `city` that includes the following fields: 1) `name`: an `char` array with 10 entries, 2) `zipcode`: an `int`, 3) `note`: a `char` pointer.

1
2
3
4
5

7. When accessing a field of a defined struct, in which circumstances should we use `.` versus `->`?

Use `.` when the variable is

Use `->` when the variable is

8. The following C code declares and uses a struct.

```
1 struct student {
2     int id;
3     char username[12];
4     char* major;
5 };
6 struct student rosie;
7 struct student* ptr = &rosie;
```

- What is the size of this data type? (Assume the code runs on a 64-bit machine)

+ + = Bytes

- Draw a memory/pointer diagram to illustrate how the variables (`rosie`, `ptr`) are stored in memory.

- Which of the following lines of code are legitimate? (Multiple options apply)

(a) `rosie->id`

(d) `ptr.username`

(b) `(*rosie).major`

(e) `ptr->major`

(c) `(*ptr).major`

(f) `*(ptr->username + 5)`

9. **Reflection:** What is one thing from this topic that you found interesting, OR what is one question you are now curious to learn more about?