

Given the following program:

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

int main()
{
    char s[50];
    char *x, *y;

    strcpy(s, "ABCDEFGHIJKLMNOPQRSTUVWXYZ");
    x = s + 2;
    y = x + 5;

    strcpy(x, "01234567");
    printf("%s\n", s);

    strcat(y, "abcde");
    printf("%s\n", x);

    printf("%s\n", x+15);
}
```

- **Question 1:** What is the first line of output of this program?
- **Question 2:** What is the second line of output of this program?
- **Question 3:** What is the third line of output of this program?

Answers to Clicker Questions For the C-Strings Lecture

Let's use ASCII art to look at s, x and y. We'll use an asterisk to represent the null character:

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ*
^ ^ ^
k | |
s x y
```

After the `strcpy()`, the bytes become:

```
AB01234567*LMNOPQRSTUVWXYZ*
^ ^ ^
| | |
s x y
```

So the first line of output is: "AB01234567".

Now, the `strcat()` finds the end of the string that starts with '6', and appends "abcde" to it:

```
AB01234567abcde*QRSTUVWXYZ*
^ ^ ^
| | |
s x y
```

So the second line is the string that starts with x: "01234567abcde".

We can count 15 characters from x:

```
AB01234567abcde*QRSTUVWXYZ*
^ ^ ^ ^
| | | |
s x y x+15
```

The last line of output is the string starting with "R": "RSTUVWXYZ".