



# Computer Programming

Dr. Deepak B Phatak  
Dr. Supratik Chakraborty  
Department of Computer Science and Engineering  
IIT Bombay

**Session: Quiz and Practice Questions on Pointers**

# Recap Quiz



**Q1. Let “a” be an “int” variable declared in the “main” function. The types of the expressions “&a” and “\*(&a)” are respectively**

- A. int and int \***
- B. int \* and int**
- C. int \* and int \*\***
- D. int and int\*\***

# Recap Quiz



**Q2. Suppose “a” and “b” are local variables declared in the “main” function. The expressions “&a” and “&b”**

- A. May have the same values**
- B. Must necessarily have different values**
- C. May have the value 0x0**
- D. Must necessarily have values different from 0x0**

# Recap Quiz



**Q3. Let “ptrX” be a variable of type “int \*” declared in the “main” function. Which of the following expressions when evaluated can give an error?**

- A. &ptrX**
- B. \*ptrX**
- C. \*(\*ptrX)**
- D. &(\*ptrX)**

# Recap Quiz

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**Q4. Memory for the local variables of a function are allocated in**

- A. The stack segment**
- B. The data segment**
- C. The code segment**
- D. All of the above**

**Q5. Suppose all addresses in main memory can be represented using 32 bits. Which of the following variable declarations requires 4 bytes of storage in the stack segment?**

- A. char myChar;**
- B. char \*myCharPtr;**
- C. char \*\*myCharPtrPtr;**
- D. char \*\*\*myCharPtrPtrPtr;**

## Practice Question 1

Consider the following program fragment:

```
int A[10] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};  
int *ptr, sum = 0;  
ptr = &(A[0]);  
for ( ; ; ) {  
    sum = sum + (*ptr);  
    if ((*ptr) < 10) {  
        ptr = &(A[*ptr]);  
    }  
    else break;  
}
```

**Does the for loop terminate? If so, what is the value of sum after the loop terminates?**

## Practice Question 2

Consider the following program fragment:

```
int A[10] = {9, 8, 7, 6, 5, 4, 3, 2, 1, 0};
int *ptr, sum = 0;
ptr = &(A[0]);
for ( ; ; ) {
    sum = sum + ((*ptr)++);
    if ((*ptr) < 10) {
        ptr = &(A[*ptr]);
    }
    else break;
}
```

**Does the for loop terminate? If so, what is the value of sum after the loop terminates?**

## Practice Question 3



**A student wants to use a 2-dimensional character array in a program. However, the lab TAs have forbidden anybody from declaring 2-dimensional arrays in their programs.**

**How would you go about solving this problem? Assume that the 2-dimensional character array is of size 10 x 10**

## Practice Question 3 (continued)



**Your solution should be such that the following C++ code compiles and runs as expected:**

```
for (int i = 0; i < 10; i++) {  
    for (int j = 0; j < 10; j++) {  
        cin >> (A[i])[j];  
        cout << "Read value: " << (A[i])[j];  
    }  
}
```