Cognizant Technical & Coding

1. What is a dangling pointer in C?

- A dangling pointer is a pointer that does not point to a valid object of the appropriate type. It appears when a pointer is in the stack but not in the memory in a heap. Char *p =NULL; A dangling pointer attempt to deallocate without allocating space will result in a segmentation fault.
- Dangling pointers arise during object destruction, when an object that has an incoming reference is deleted or deallocated, without changing the data of the pointer, so that the pointer points to the memory location of the deallocated memory.

2. a++ or a = a+1, which can be recommended to increment the value by 1 and why?

a++, as it is single machine instruction (INC) internally.

3. How will you print the address of a variable without using a pointer?

```
#include <stdio.h>
int main(void)
{
// declaring the variables
int x;
float y;
char z;
printf(“Address of x: %p\n”, &x);
printf(“Address of y: %p\n”, &y);
```

```
printf(“Address of z: %p\n”, &z);
return 0;
}
```

4.Difference between memcpy() and strcpy() functions in C

- memcpy() function is used to copy a specified number of bytes from one memory to another.
- Whereas, strcpy() function is used to copy the contents of one string into another string.
- memcpy() function acts on memory rather than value. Whereas, strcpy() function acts on value rather than memory.

5. **What do you understand about Proactive, Retroactive, and Simultaneous Update in the context of DBMS?**

- **Proactive Updates:** These changes are made to the database before it is put into use in the real-world environment.
- **Retroactive Updates:** These updates are applied to a database after it has been operational in the real-world environment.
- **Simultaneous Updates:** These updates are applied to the database at the same moment as they become functional in the real-world environment.

6. **What is Root Partition in OS?**

The root partition is the place where the operating system kernel is located. Other potentially crucial system files that are mounted during boot time are contained in it as well.

7. **What is Banker's algorithm?**

Banker's algorithm is used to avoid deadlock. It is one of the deadlock-avoidance methods. It is named as Banker's algorithm on the banking system where bank never allocates available cash in such a manner that it can no longer satisfy the requirements of all of its customers.

8. **Give a brief description of the TCP/ IP Model.**

The TCP/ IP Model is a compressed version of the OSI Model. This Model contains 4 layers unlike the OSI Model which are

- Process (Application Layer)
- Host-to-Host (Transport Layer)
- Internet Layer (Network Layer)
- Network Access (Combination of Physical and Data Link Layer)

9. **What is hashmap in data structure?**

Hashmap is a data structure that uses the implementation of a hash table data structure which allows access of data in constant time (O(1)) complexity if you have the key.

10. **What is Software configuration management?**

Software configuration management is a process of tracking and controlling changes that happen in the software. Change control is a function that ensures that all changes made into the software system are consistent and created using organizational rules and regulations.