# Cloud IT – All Previous Year Written Questions

### C Programming

1. Write a program to find whether the given number is an Armstrong number or not?
2. Write a program to reverse a string. (see main.py in github.com)
3. Write a program to sort a list of elements using the insertion sort algorithm.
4. What are the properties of the command line arguments in C/C++?
5. Write a function void changeCaseAndReverse(char \*s) using c programming language that will print the characters in the string S in reverse order and will also change the uppercase letters to lowercase and lowercase letters to uppercase. For example if you call changeCaseAndReverse(“Hello There”), it will print EREHt OLLEh.
6. C program to find sum of following series:  
   1 + 1/2 + 1/3 + 1/4 + … + 1/n.
7. Write a pseudocode that takes in one positive number only and returns the factor for that number.
8. How many bits have to change to convert int A to int B?  
   Sample: A = 31 and B = 14.
9. Difference between getch() and getche(). What is file pointer in C?
10. Write code to test a sorting algorithm of array?
11. Write a program in c to find the sum of following series.  
    1^2 - 2^2 + 3^2 - … + n^2
12. A prime number is a number that is evenly divided by only 1 and itself. Write a program to your favourite language to print the first 100 prime numbers.
13. A program sorts an array of integer. Write down the code that test the sorting algorithm of written in a program.
14. Write a program to find out the number of occurrences of a digit in a number.  
    Explanation if input value n add selection value is d.
15. Write a program to evaluate the series:  
    1\*3 + 2\*5 + 3\*7 + … + n\*(2n + 1)
16. Difference between call by value and call by reference with example.
17. Write a program using any programming language that reads five numbers from keyboard an display the smaller, larger and average of those numbers.
18. Write a program to sort an array and find max, min value.
19. Write a program to calculate GPA, average, and total marks.
20. Write an algorithm that sort an array, also test code for sorting test.
21. Using examples explain data types used in C language.
22. Write a program to read the coordinates of the end points of a line and to find its length. Use a structured variable name ‘Line’ to store the relevant information about its end points.
23. Write a program in C to calculate the sum of the series:  
    1 + (1+2) +(1+2+3) +… +(1+2+…+n)
24. Write in details the different forms of looping statement in C language.
25. Write a program in C with recursive function to compute the value ‘x’ where n is a positive integer and x has real value.
26. What is algorithm? Write down the algorithm to find out the second highest and second lowest element in an n-element array.
27. Draw a flowchart of ax2+bx+c through C/C++ program.
28. What is the difference between while and do while loop?

### Data Structure

1. Difference between linear and non-linear data structure.
2. Describe infix to postfix conversion method. Advantage of stack using link list then array.
3. What are the operations performed on a data structure? What is prefix, post fix and infix operation?
4. Draw a binary min heap that results from inserting 9, 3, 7, 4, 8, ,2, 6, 5 in that order into an initially empty heap. Show each insertion step separately. You do not need to show the array representation. Just draw the trees.
5. Describe four types of sorting algorithm with example.
6. Advantage of merge sort heap sort, insertion sort. Advantage and complexity of them.
7. Draw a flow chart to input five positive numbers, and sort them in ascending order.
8. Write a algorithm to find a node in a binary search tree. Difference between stacks and queue with example.
9. Write down time complexities of different sorting algorithm.
10. Explain BFS Traversal of a graph with an example