M.Sc. (CA & IT) Sem-I

CCCS-101, Introduction to Computer Science and Programming

Marks: 70 **Duration: 3 Hrs**

Q.1 (A) Answer the Following (Any Four) **[04]**

1. Expand: IDLE.
2. What is a variable? How does it differ from constant?
3. What is a tuple?
4. What is worst case analysis?
5. Give an example of exponential growth.

Q.1 (B) Answer the Following (Any Two) **[06]**

1. Explain comparison operators in Python.
2. What is *in* operator?
3. Give examples of approximation algorithms.

Q.1 (C) Write pseudo code for linear search on a numeric list. **[04]**

Q.2 (A) Answer the Following (Any Four) **[04]**

1. What is brute force approach?
2. Which algorithm Stack uses?
3. What is the usage of *def* keyword in Python?
4. What is global variable?
5. Constants should be styled as capital letters. *(State True or False)*

Q.2 (B) Answer the Following (Any Two) **[06]**

1. Briefly explain: Turing completeness.
2. State differences between formal and actual parameters.
3. Demonstrate *for* loop with appropriate example.

Q.2 (C) Write Python function that returns square of argument. **[04]**

Q.3 (A) Answer the Following (Any Two) **[04]**

1. What is mutability?
2. What is First in First Out?
3. What is the meaning of scope, in terms of variables?

Q.3 (B) Answer the Following (Any Two) **[06]**

1. Discuss function declaration in Python.
2. Demonstrate nesting of loops with appropriate example.
3. Demonstrate string slicing with appropriate example.

Q.3 (C) Write Python code to print Fibonacci sequence upto a given number. **[04]**

Q.4 (A) Answer the Following (Any Two) **[04]**

1. How to declare a list in Python?
2. How to add an element into a list?
3. How to sort a dictionary by key?

Q.4 (B) Answer the Following (Any Two) **[06]**

1. What is dictionary? How is it useful?
2. What is divide and conquer?
3. Briefly explain Tower of Hanoi problem.

Q.4 (C) Write Python code to count word frequency in a given text file. **[04]**

Q.5 (A) Answer the Following (Any Two) **[04]**

1. Why sorting algorithms important?
2. Who created Python language?
3. Python is open source language. *(True/False)*

Q.5 (B) Answer the Following (Any Two) **[06]**

1. What is problem reduction? Explain in brief.
2. Explain indirection in brief.
3. What is expected case and best case?

Q.5 (C) Write Python code for Bubble sort. **[04]**