PG/IS/COS/106/24

M.Sc. 1st Semester Examination, 2024

COMPUTER SCIENCE

(*Algorithm Lab using Python and Cloud Computing Lab*)

PAPER – COS-106

Full Marks : 50

Time : 3 hours

Answer **all** questions

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

GROUP – A

Answer any **one** question : 20×1

1. Write a program using python to sort a list by Quicksort using divide and conquer strategy.

2. Implement the matrix chain multiplication problem using dynamic programming approach.

3. Implement the Floyd-Warshall algorithm for finding the shortest path between all pair of vertices of a given graph using dynamic programming approach.

4. Write a program to find the factorial of a given number using both non-tail recursive and tail recursive approach.

5. Write a program to implement Diffie-Hellman algorithm.

GROUP – B

Answer any **one** question from **1** to **4** and **one** from **5** to **7** : $(15 \times 1 + 10 \times 1)$

1. Install Virtualbox/VMware Workstation with different flavors of OS (windows/Linux) on top of Windows.

2. Install Hadoop single node cluster and run simple applications like wordcount.

3. Install Google App Engine. Create hello world app and other simple web applications using python/java.

4. Use the GAE launcher to launch the web applications.

5. Simulate a cloud scenario using CloudSim and run a scheduling algorithm that is not present in CloudSim.

6. Install a C compiler in the virtual machine created using a virtual box and execute Simple Programs.

7. Find a procedure to transfer the files from one virtual machine to another virtual machine.

[PNB + Viva = 5 Marks]
