

**PG (CBCS)**  
**M.Sc. Semester-I Examination, 2022**  
**COMPUTER SCIENCE**  
**PAPER: COS 196**  
**(PRACTICAL)**

**Full Marks: 25**

**Time: 1 Hours**

**COS MI:**  
**(ALGORITHM LAB USING PYTHON)**

**Answer any one questions**

**1X15=15**

1. Write a python program to find the factorial of a number using tail recursion.
2. Write a python program to generate the nth Fibonacci number using tail recursion.
3. Write a python program to sort a list with Quicksort using divide and conquer strategy.
4. Write a python program to implement the binary search using divide and conquer strategy.
5. Write a python program to sort a list with Merge sort using divide and conquer strategy.
6. Write a python program to implement matrix chain multiplication problem using dynamic programming.
7. Write a python program to find single source shortest path using Dijkstra algorithm.
8. Write a python program to solve a given knapsack problem using greedy approach.
9. Write a python program to implement Breadth-First Search (BFS).
10. Write a python program to implement Depth First Search (DFS)

PNB:

5

Viva:

5

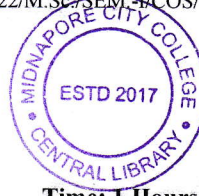


**P.T.O.**

(2)

MCC/22/M.Sc./SEM-1/COS/1

**COS MII:**  
**(CLOUD COMPUTING LAB)**



**Full Marks: 25**

**Time: 1 Hours**

**Answer any one questions**

**1X15=15**

1. Demonstrate how you will a Configure a VM instance using virtual box in your local machine and allocate CPU, memory and storage space as per a specified requirement. Write the steps for Installation of Guest OS (Ubuntu) image in that instance.
2. Launch the already installed guest OS in VM and perform the following OS commands.
  - a) create a new directory
  - b) changing the name of the directory
  - c) show the current working directory
3. Launch the already installed guest OS in VM and perform the following OS commands.
  - a) Removing the directory
  - b) Show the current date and time
  - c) Prints a calendar for the specified month of the specified year.
  - d) View the content of a particular file
2. Install Google App Engine. Create hello world web applications using python. Write each of the steps.
3. Install a C compiler in the virtual machine and write each of the steps.
4. Using Virtualbox/VMware created and execute Sum of the digits program
5. Using Virtualbox/VMware created and execute reverse of a number program
6. Using Virtualbox/VMware created and execute gcd of two numbers program
7. Using Virtualbox/VMware created and execute lcm of two numbers program
8. Using Virtualbox/VMware created and execute factorial of a number program

\*\*\*\*