

# Università degli studi “Roma Tre”

A.Y: 2022/2023

Teaching: Sistemi Operativi

Course: Ingegneria Informatica

Exam session: 28/07/2023 – Written test

Maximum score: 21 points

STUDENT ID \_\_\_\_\_ Last Name \_\_\_\_\_ First Name \_\_\_\_\_

*It is recommended that you write your surname and name on this sheet and use it as a folder to contain the answer sheets. If you consider a question ambiguous, write down your interpretation and respond accordingly.*

## Question 1 (6 points)

Describe the concept of process. What are the possible states of a process?

## Question 2 (6 points).

Describe the optimal algorithm for page replacement in a virtual memory environment.

Finally, indicate whether or not this algorithm suffers from Belady's anomaly, justifying your answer.

## Question 3 (9 points).

Describe the main goals of a per-disk I/O scheduling policy. Also, describe the Shortest-seek-time-first policy and how it behaves in a scenario where requests come to the operating system to access the following traces of a disk:

120, 30, 60, 45, 25.90, 70, 15, 20.

Determine the effective scheduling sequence of operations towards the disk considering that the head is initially placed on track 50 of the disk with direction oriented towards increasing track numbers.

The publication of the result via Web will take place anonymously using the serial number. To have your exam grade published on the course website, you must sign the following authorization.

The undersigned, pursuant to law 675 of 31/12/96, authorizes the lecturer to publish the results of the exam on the bulletin board and / or on the Web. In faith

Legible signature: \_\_\_\_\_