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.