

Advanced Operating Systems and Virtualization
June 25th, 2019

Name: _____ **Surname:** _____ **Student ID:** _____

Remember to write your correct personal data on this sheet, and use it as a folder to wrap the exposition. If you think a question is ambiguous, write your interpretation and answer accordingly. Ability to précis will be honoured.

You are not allowed to use any note or digital device. If you are found copying or consulting notes, you will not pass the written test.

Question 1

Describe the ring model on x86 CPUs. Illustrate what are the steps required to enable and use it, and the way modern operating systems rely on it to enforce internal security from userspace applications.

Question 2

Discuss what are the different types of interrupts supported by x86 CPUs. Illustrate how Linux supports the management of these interrupts.

Question 3

Describe how Linux supports per-CPU variables. What are the benefits of relying on this programming facility? What are the problems a programmer must face in order for their code to be correct?

I, the undersigned, according to the provisions of law N. 675/96, allow the professor to publish on the website the results of this written test.

Legible signature in full: _____