

ORDRE DES INGÉNIEURS DU QUÉBEC

NOVEMBER 2016 SESSION

Open-book examination
Calculators : only authorized models
Duration : 3 hours
(100 points Exam)

14-IF-A3 COMPUTER ARCHITECTURE

1. Explains the advantages and disadvantages to have general purpose registers (GPR) in a processor : (20 points)
2. Explains how the cache replacement LRU works : (20 points)
3. What is the purpose of a write buffer and what would be the impact of its capacity on the performance of the system? What are the possible disadvantages to increase its capacity: (20 points)
4. Explains how an interleaved memory works and give its advantages : (20 points)
5. Describes the architectures SISD, SIMD et MIMD and explains the advantages (strong points) of each architecture : (20 points)