



**Università Commerciale
Luigi Bocconi**

**MSc. Finance/CLEFIN
2018/2019 Edition**

THEORY OF FINANCE – PART 1

Mock Question 1 (total 5 points)
Time Advised: 20-21 minutes (for this question)
Difficulty Level: EASY

Question 1.A (3.75 points)

Describe in precise mathematical terms how would you go about setting up a typical portfolio selection problem, when your goal is to involve adequate computing power. Make sure to carefully define all symbols and quantities invoked in your answer.

Question 1.B (0.75 points)

John and Mary use the mathematical set up that you have defined in question 1.A to get support from a computer network system in solving the task of computing their optimal asset allocation. In what way do you think that they may use the mathematical set up in question 1.A to capture the fact that they are different individuals with different personal attitudes?

Question 1.C (0.5 points)

Suppose that $P_t(\omega_0, \omega_1, \dots, \omega_t) = \text{monetary wealth}$ at time t and that you are told that John is a very patient investor who is indifferent about risk, while Mary is an impatient investor very much risk averse. Both John and Mary are expected utility maximizers. With reference to the mathematical set up that you have defined in question 1.A, how will you communicate such differences to a computer network system that solves the task of computing their optimal asset allocation?