

# Midterm - Example

- Partial and unsatisfactory answer/solution will receive a fraction of the points, whereas excellent answers may exceed the indicated points.
- Use of books/notes is forbidden.
- Indicate name and UC ID number in ALL the solution sheets. Number the solution sheets and indicate total number of sheets (*e.g.*, first sheet 1/3, second sheet 2/3, third sheet 3/3).

**S1** Consider an application infrequently generating short bursts of traffic. Is circuit switching or packet switching a better choice? Please motivate your answer.

**S2** List and describe the sources of delay experienced by a packet from the moment it arrives at a router to the moment it reaches the following one.

**S3** Describe the architecture and basic operations of file sharing applications. Is it a peer-to-peer or client-server architecture? Is there any strategy used to maximize the reliability of file transfer.

**S4** Describe the difference between peer-to-peer and client-server architecture.

**S5** Discuss the advantages and disadvantages of persistent and non-persistent connection model in HTTP.

**S6** A Poisson process generates events at rate  $\lambda$ . Each event is **discarded** with probability  $p$ . What is the rate of the resulting process?

- $(1 - p)/\lambda$
- $p/\lambda$
- $(1 - p)\lambda$
- $p\lambda$

**S7** State the memoryless property of exponential distribution in the form of conditional probabilities.