

## Computer Networks (CS401) - Midterm

Cairo University, Faculty of Science  
Department of Mathematics

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### Question 1

- a. What is the difference between protocols and interfaces?
- b. Why is it important to define clean interfaces between network layers?

### Question 2

Mention 3 design issues for network layers and define them.

### Question 3

- a. *Each message is routed through the system independent of all the others.* Indicate the type of service in which the previous statement is true.
- b. Why would anyone actually prefer unreliable communication to reliable one?

### Question 4

- a. What do Nyquist and Shannon's theorem measure?
- b. Compare and contrast both theorems.
- c. In Shannon's theorem, what happens when
  1. Bandwidth increases.
  2. Signal-to-noise ratio increases.
  3. Signal-to-noise ratio approaches infinity.