

**CS 531 – Fall 2020**

**SECURITY IN CYBER-PHYSICAL SYSTEMS**

**QUIZ #3**

**9/10/2020**

If there are more than one answer, please select both. Hint: Some questions may have multiple answers.

Please write justification for each answer for partial credits.

- 1) Each layer in networks has specific tasks and these are usually isolated. Please match the columns from a-d to I-IV, considering the best fit. (20 points)
  - a. Application
  - b. Network
  - c. Data Link
  - d. Physical
  - I. IP Addresses
  - II. Mac addresses
  - III. Signal
  - IV. Device command (close valve)
  
- 2) For security, where is the best place to isolate the process control network from outside system? (10 points)
  - a. IED to RTU
  - b. RTU to ICS Server (SCADA server)
  - c. ICS Server to Data Historian

Explain your answer why you selected whichever you picked (10 points).

- 3) As the network segmentation increases, the overall end-to-end latency increases. (10 p)
  - a. True
  - b. False
  
- 4) Which topology is used most in Ethernet networks? (10 p)
  - a. Ring
  - b. Bus
  - c. Star
  - d. Mesh

- 5) Which of the following can be considered as field device? (15 p)
- a. IED
  - b. RTU
  - c. MTU
  - d. PLC
  - e. HMI
  - f. Data Historian
- 6) Which of the following can be considered as business/enterprise device/interface? (15 p)
- a. IED
  - b. RTU
  - c. MTU
  - d. PLC
  - e. HMI
  - f. Data Historian
- 7) What is the most obvious security impact of hacking/infecting Data Historian, considering CIA triad? (10 p)