

**Network Architectures 3329**  
**Spring 2018**  
**01/24/18**

**Name:** \_\_\_\_\_  
**Quiz 2-1**  
**Time Limit: 5 minutes**

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- **Print your name.**
- Close-book policy: You may not use the text, my class notes and/or any notes and study guides you have created. You may use a calculator. You may not use a cell phone or computer.

Problem	Points	Score
1	1	
2	1	
3	1	
4	1	
5	1	
Total:	5	

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**True or False**

1. (1 point) The most important sources of nodal delay include the nodal processing delay, queueing delay, transmission delay, and propagation delay. Compared to transmission delay and propagation delay, the processing delay is often negligible; however, it strongly influences a router's maximum throughput.  
**A. true**   B. false
2. (1 point) Traffic intensity ( $La/R$ ) is the ratio of traffic arrival rate ( $La$ ) and transmission rate ( $R$ ). The golden rule of traffic engineering is: Design your system so that the traffic intensity is no greater than 1.  
**A. true**   B. false
3. (1 point) If packets arrive periodically (not bursts), then every packet will arrive at an empty queue without incurring any queueing delay.  
A. true   **B. false**
4. (1 point) Consider a network of  $N$  links, with the transmission rates of the  $N$  links being  $R_1, R_2, \dots, R_N$ . The throughput for a file transfer in the network will be  $\min\{R_1, R_2, \dots, R_N\}$   
A. true   **B. false**
5. (1 point) traceroute is a program that can run in any Internet host. Given a certain destination host, it probes all the routers along the path to that destination, generating round-trip delays for all those intermediary routers. The round-trip delay to the  $n$ th router, however, can be greater than the  $n + 1$ th router. This is because the \_\_\_\_\_ can be varying with time.  
A. transmission delay  
B. processing delay  
**C. queueing delay**  
D. propagation delay