

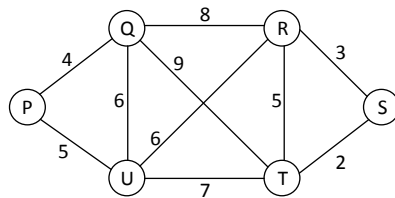


EAST WEST UNIVERSITY
Department of Computer Science and Engineering
B.Sc. in Computer Science and Engineering Program
Final Examination, Summer 2021 Semester

Course: CSE 405 Computer Networks
Instructor: Dr. Anisur Rahman, Associate Professor, Department of CSE
Full Marks: (5*6 marks) = 30 marks
Time: 50 min (to write) + 10 min (to upload) = 60 min

Note: There are FIVE questions, answer ALL of them. Course Outcome (CO), Cognitive Level and Marks of each question are mentioned at the right margin.

1. **Analyze** what problem arises if 'age' is set too low and what issue may arise if 'age' is set too high in the link state packets at the time of sequence number error. Draw a link state packet for router 'T' for the following subnet. [CO3, C2 marks: 6]



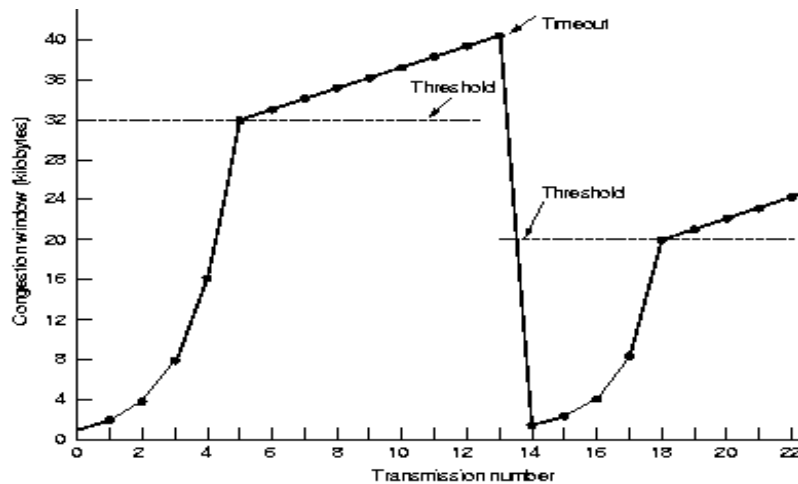
2. **Analyze** how leaky bucket algorithm can help to control the flow which in turn helps network to remain congestion free. If the bursty input of leaky bucket algorithm is 496MB/sec for 950msec; what would be the duration of output for a leak considering network data rate is 24MB/sec? [CO3, C2 marks: 6]
3. Following are the two scenarios where packet delays of 6 packets are shown in between source and destination. Find which of the following scenarios has low jitter and why. Briefly explain why low jitter is a necessity for multimedia communication and draw a graph to show a communication that has no jitter at all. [CO3, C2 marks: 6]

Scenario 1		
Source	Destination	Delay (msec)
P ₁ <input type="text"/>	P ₁ <input type="text"/>	89.5
P ₂ <input type="text"/>	P ₂ <input type="text"/>	91.6
P ₃ <input type="text"/>	P ₃ <input type="text"/>	89.4
P ₄ <input type="text"/>	P ₄ <input type="text"/>	90.7
P ₅ <input type="text"/>	P ₅ <input type="text"/>	90.8
P ₆ <input type="text"/>	P ₆ <input type="text"/>	89.9

Scenario 2		
Source	Destination	Delay (msec)
P ₁ <input type="text"/>	P ₁ <input type="text"/>	6
P ₂ <input type="text"/>	P ₂ <input type="text"/>	23
P ₃ <input type="text"/>	P ₃ <input type="text"/>	12
P ₄ <input type="text"/>	P ₄ <input type="text"/>	59
P ₅ <input type="text"/>	P ₅ <input type="text"/>	22
P ₆ <input type="text"/>	P ₆ <input type="text"/>	90

4. An example graph of congestion control in transport layer is given below. If the present threshold is set to be 612 KB and the present congestion window (i.e. transmission size) is 256 KB, **find** the sizes of the next 8 consecutive congestion windows considering 614KB is going to be the timeout point. (you don't need to draw the graph, only values will suffice)

[CO3, C3
marks: 6]



5. Following is the orientation of a typical server farm, which does not have shared cache memory because each processing node has its own cache memory. Briefly describe how this feature (i.e., having own cache memory for each processing node), is used to increase performance of the server farm further.

[CO3, C3
marks: 6]

