Unit 7 - Packet Switching, Buffering strategies, Input Queued Switch, Output Queued switch

Assignment Week 6

The due date for submitting this assignment has passed. Due on 2016-08-30, 23:59 IST.

Submitted assignment

1) Real time video and audio transmission is possible over internet because
   - Propagation delay and packetization delay are reduced.
   - Packetization delay and transmission delay are reduced
   - Transmission delay and header processing delay are reduced

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   Transmission delay and header processing delay are reduced.

2) A 32x32 crossbar packet switch has a speed up factor of k. For what value of k head of the line blocking will not occur?
   - k=32
   - k=1
   - k=16
   - 1<k<32

   No, the answer is incorrect.
   Score: 0
   Accepted Answers: k=32

3) What is the queue length ($Q_m$) at an output, in the $m^{th}$ time slot for an output queued crossbar switch with speed up factor of N?
   - $Q_{m-1}+A_{m-1}
   - $Max(Q_{m-1}+A_{m-1},0)$
   - $Q_{m-1}+A_m+1$
   - $Q_{m-1}-A_m-1$

   No, the answer is incorrect.
   Score: 0
   Accepted Answers: $Max(Q_{m-1}+A_{m-1},0)$
4) Consider an NxN output queued switch with p as the probability of packet arrival at an input slot. What is the probability generating function for packet arrival at output port? 1 point

- \( [1-p/N+(zp/N)]^N \)
- \( [1-p/N-(zp/N)]^N \)
- \( [1+p/N-(zp/N)]^N \)
- \( [1-p/N+(zp/N)] \)

No, the answer is incorrect.

Score: 0

Accepted Answers:
- \( [1-p/N+(zp/N)]^N \)

5) What is the average queue length for an NxN output queued crossbar switch? 1 point

\( p=\text{probability of packet arrival at an input slot} \)

- \( [(N-1)/N][p/(1-p)] \)
- \( p^2/(1-2p) \)
- \( (N/(N-1))[p^2/(1-p)] \)
- \( [(N-1)/N][p^2/2(1-p)] \)

No, the answer is incorrect.

Score: 0

Accepted Answers:
- \( [(N-1)/N][p^2/2(1-p)] \)

6) For an NxN output queued crossbar switch, what is the probability that a tagged packet is arrives in the batch of I packets? 1 point

\( p=\text{probability of packet arrival at an input slot}, a_i=\text{probability of I packets arrival at an output port} \)

- \( a_i/p \)
- \( ia_i/p \)
- \( ia_i \)
- \( a_i \ p \)

No, the answer is incorrect.

Score: 0

Accepted Answers:
- \( ia_i/p \)

7) Average waiting time for a packet in an NxN output queued crossbar switch is 1 point

\( W_{MD|1|\infty} = \text{average waiting time for Markovian arrival, deterministic departure, single server and infinite buffer queue} \)

- \( [(N-1)/N]W_{MD|1|\infty} \)
- \( [N/(N-1)]W_{MD|1|\infty} \)
- \( W_{MD|1|\infty} \)
- \( NW_{MD|1|\infty} \)

No, the answer is incorrect.

Score: 0

Accepted Answers:
- \( [(N-1)/N]W_{MD|1|\infty} \)

8) What is the probability that k number of new packets moves to the free head of the queue in the beginning of mth time slot destined for output i? 1 point

\( F \text{ number of free input queues after m-1 time slot} \)

- \( FC_k(1/N)^k (1/F)^{F-k} \)
- \( FC_k(1-1/N)^k (1/N)^{F-k} \)
Maximum throughput achieved by an input queued packet switch under saturation condition is

- $2-\sqrt{2}$
- $\ln(\sqrt{2}+1)$
- $2+\sqrt{2}$
- $\sqrt{2}-1$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$F_c \left( \frac{1}{N} \right)^k (1-N)^{F-k}$

What is the threshold value of probability of arrival for an input queued packet switch, system should start dropping some packets to achieve throughput higher than 0.586.

- $\ln(1-\sqrt{2})$
- $\ln(1+\sqrt{2})$
- $\ln(2-\sqrt{2})$
- $\ln(2+\sqrt{2})$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\ln(1+\sqrt{2})$