Major Exam EEL703 Computer Networks Subrat Kar 02 May 2009 1300-1400 hrs

Please answer all questions. Take a copy of your answers with you and enter them on the web. Your marks should be ready by 10 May 2009. Q.1-10 : 2 marks each ; Q.11-14 carry four marks ; Q.15 carries 10 marks (Abbrev:NOTA = None of the above)

1. The core ATM cloud is a (a) M/M/k queue (b) M/1/1 queue (c) network of tandem queues (d) NOTA

2. To evaluate the goodput, one .... the data rate (a) must know (b) need not know (c) should first estimate (d) should normalize against the

3. An example of a point-to-multipoint network is 802.__ (a) .15.4 (b) .11 (c) .16 (d) .21

4. The network management protocol most used is (a) SNMP (b) RMON (c) CMOT (d) OpenVIEW

5. Sliding window control at the session layer (a) does not work (b) does not achieve congestion control (c) does not do flow control (d) cause decrease of throughput

6. BGP is a .... based algorithm (a) DV (b) LS (c) SPF (d) none of the above

7. If a router fails, it will most likely cause (a) tandem tripping (b) domino tripping (c) isobaric congestion increase (d) nothing at all

8. Cut-through routing (a) decreases throughput (b) increases routing decisions (c) decreases routing table size (d) has no effect

9. When a email goes from a MUA to a MTA in SMTP based system, it makes ..... DNS calls (a) one (b) two (c) three (d) four

10. Quenching cannot happen in the TCP layer (a) true (b) false (c) except under congestion (d) none of the above

11. A traffic regulator manages message arrivals at a buffer of a transmission line. Messages inter-arrival times and transmission times are exponentially distributed with mean λ and mean μ respectively. The traffic regulator policy **sends** messages to the transmission buffer with probability q and **blocks** messages with a probability (1-q). The mean message delay from the arrival into the buffer to the completion of transmission is (a) $q/(\mu-\lambda)$ (b) $\lambda q/(\mu-\lambda)$ (c) $1/(\mu-\lambda q)$ (d) q/μ

12. The effective arrival rate of M/M/2/3 queueing model (where P_0 is the probability that the system is empty in steady state) is

    (a) $\frac{\lambda}{6\mu^3}(6\mu^3-\lambda^3 P_0)$

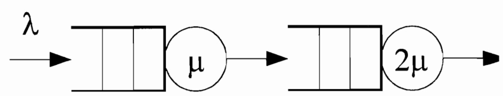
    (b) $\frac{\lambda}{4\mu^3}(4\mu^3-\lambda^3 P_0)$

    (c) $\frac{\lambda}{6\mu^3}(6\lambda^3-\mu^3 P_0)$

    (d) $\frac{\lambda}{4\mu^3}(4\lambda^3-\mu^3 P_0)$

13. A radio link adopts four equivalent parallel transmitters for redundancy. The operatioal characteristics of the tramsmitters require that each of them be switched off (for maintenance) according to a Poisson Process with a mean Interarrival Time of 1 month. The maintenance time is exponentially distributed with mean duration of 12 hours and two technicians are available. The queueing model is (a) M/M/2/4 with infinite source (b) M/M/4/4 loss system (c) M/M/2/4 with finite source (d) M/M/2

14. Consider two M/M/1 queueing systems connected in series as follows. The mean time taken by an arbitrary customer to pass both M/M/1 systems is



    (a) $\frac{1}{\mu(1-\frac{\lambda}{\mu})}+\frac{1}{2\mu(1-\frac{\lambda}{2\mu})}$

    (b) $\frac{\lambda}{\mu(1-\frac{\lambda}{\mu})}+\frac{\lambda}{2\mu(1-\frac{\lambda}{2\mu})}$

    (c) $\frac{\lambda}{\mu(1-\frac{\lambda}{\mu})}+\frac{\lambda}{2\mu(1-\frac{\lambda}{\mu})}$

    (d) $\frac{1}{\mu(1-\frac{\lambda}{\mu})}+\frac{1}{\mu(1-\frac{\lambda}{2\mu})}$

15. Defend or refute (you must take a stand either this way or the other, write it overleaf) the idea: "Cell switched networks run well but are difficult to run". *Don't be stingy with diagrams and colors – a picture is worth a thousand words.*

1	2	3	4	5	6	7	8	9	10	11	12	13	14

- - - -detach and take away the copy of your answers - -

1	2	3	4	5	6	7	8	9	10	11	12	13	14