Name: .... Entry #: ....

Major Exam EEL703 Computer Networks Subrat Kar 30 Apr 2010 1030-1230 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 05 May 2010. Q.1-10 : 2 marks each ; Q.11-15 carry four marks ;Q.16 carries 10 marks (Abbrev:NOTA = None of the above)

1. Existence of a VCI:VPI in ATM means (a) bandwidth is booked (b) service time is bounded (c) HOL blocking is guaranteed not to happen (d) NOTA

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

3. A work conserving protocol is observed in 802.__ (a) .15.4 (b) .11 (c) .16 (d) NOTA

4. The term SAAS is most used in (a) SNMP (b) elastic computing (c) network storage (d) NOTA

5. GCRA (a) does not work for data transfer (b) does not achieve (c) does not do flow control (d) cause decrease of throughput

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

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

8. Controlled flooding (a) decreases throughput (b) increases routing decisions (c) decreases routing table size (d) has no effect

9. By the time a DHCP client succeeds in getting a IP address, it has made ..... DNS calls (a) one (b) two (c) three (d) NOTA

10. Source routing happens in the TCP layer (a) true (b) false (c) except under congestion (d) none of the above

11. A communication line capable of transmitting at a rate of 6 Kbits/sec with arrival follows Poisson process with rate 180 packets/min. Packet lengths are exponentially distributed with mean 1000 bits. Then, the average number of packets in queue is
(a) 0.5 (b) 0.6 (c) 0.7 (d) 0.4

12. Consider a buffer that receives messages to be sent. The transmission is made by means of two modem lines that operates at a same rate. Assume that message arrival process is Poisson with mean rate λ . Also, assume that the message transmission time is exponentially distributed with mean value 1. Then the probability that the buffer empty, in long run, is
(a) $\frac{1-\lambda}{1+\lambda}$ (b) $\frac{\lambda}{1+\lambda}$
(c) $\frac{\lambda}{2+\lambda}$ (d) $\frac{2-\lambda}{2+\lambda}$

13. Consider leaky bucket flow control scheme. Packets arrive at a network entry point and must wait in a queue to obtain a permit before entering the network. Assume that packets arrive according to a Poisson process with rate λ. Also assume that a permit arrives every 1.5 seconds, but if the permits pool contains W permits, the arriving permit is discarded. Let $X(t)$ be the number of available permits at any time t. The above queueing model is
(a) M/G/1/W (b) G/M/1/W (c) G/M/1/∞ with W population source (d) M/G/1/∞ with W population source

14. Consider the queueing network depicted in the following Fig 1.The average number of packets in the network is (a) 6 (b) 5 (c) 4 (d) 3

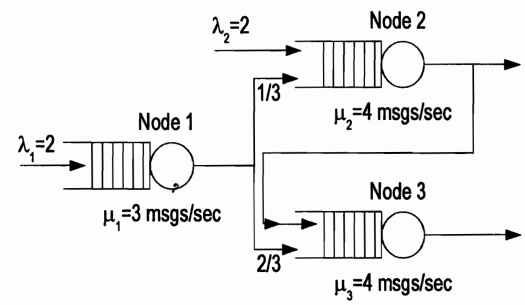

Fig 1:

15. Consider a closed queueing network with one customer as shown in the following Fig.2.

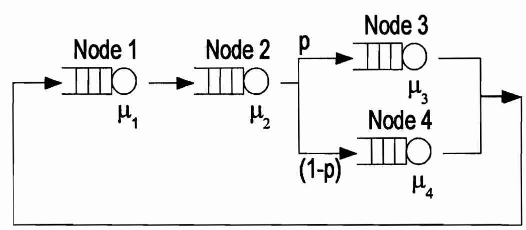

Fig 2:

When p = ½ , $\mu_1=\mu_2=\mu_3=2$ and $\mu_4=1$, the probability P(0,0,1,0) is
(a) 1/7 (b) 2/7 (c) 4/7 (d) 3/7

16. Defend or refute (*you must take a stand either for or against, write in the remaining space*) the idea: "**IP at the core network is a good idea**". *Don't be stingy with diagrams and colors – a picture is worth a thousand words.*

<u>***OR***</u>

Write a client server program which can : (a) take any numerical expression (any length) such as (2 * 3)^2 using the operators +,-,/,*,^ from any number of clients and (b) evaluate it numerically at the server and return the result to the client.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

- - - - Detach here and take away a copy of your answers: enter at - -
`http://tinyurl.com/eel703-major`
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