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Roll No. .....

CS–604

B. E. (Sixth Semester) EXAMINATION, June, 2012

(Computer Science Engg. Branch)

COMPUTER NETWORKING

(CS – 604)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt *one* question from each Unit. All questions carry equal marks.

Unit – I

1. (a) What are the components of Computer Network ? Explain goals of Computer Network. 10

   (b) A 100 km long cable runs at T_1 data rate. The propagation speed in the cable is 200000 km/sec. How many bits fit in the cable ? 4

   (c) Describe the design issues for the layers. 6

Or

2. (a) What are the various network topologies ? List the factors that affect the choice of a topology and transmission medium in a LAN. 10

   (b) Explain connection oriented and connectionless services with examples. 6

   (c) What is the difference between internet, intranet and entranet ? 4

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Unit – II

3. (a) Given an error free 64 kbps satellite channel which is used to send 512 byte data frame in one direction with very short acknowledgements coming back the other way. What will be the maximum throughput for window size 1, 7, 15 and 127 ? 10

   (b) What are various framing methods ? Explain. 6

   (c) What is Piggybacking ? 4

Or

4. (a) A channel has a bit rate of 4 kbps and propagation delay of 20 msec. For what range of frame size does stop and wait protocol give a efficiency of at least 50% ? 8

   (b) Explain sliding window protocol. 8

   (c) Compare bridges and layer-2 switches. 4

Unit – III

5. (a) Explain slotted ALOHA protocol. Derive efficiency for slotted ALOHA protocol. 10

   (b) What do you mean by limited contention protocol ? Explain any *one*. 10

Or

6. (a) A large population of ALOHA users manages to generate 50 request/sec, including both originals and retransmissions. Time is slotted in unit of 40 msec : 10

   (i) What is the chance of success on the first attempt ?

   (ii) What is the probability of exactly k collisions and then a success ?

(iii) What is expected number of transmission attempts needed ?

(iv) What is throughput of channel ?

(b) Differentiate between 802·3, 802·4 and 802·5 IEEE standard. 10

Unit – IV

7. (a) A host in an organization has an IP address 150·37·64·34 and a subnet mask 255·255·240·0. What is the address of this subnet ? What are the ranges of IP address that is host can have on this subnet ? 10

(b) What are the limitations of IPv4 ? Compare IPv4 and IPv6. 10

Or

8. (a) What do you mean by Congestion in Subnet ? Explain congestion control in datagram subnet. 10

(b) What do you mean by Routing ? What are various types of routing algorithms ? Explain any *one*. 10

Unit – V

9. (a) Explain about the various fields of TCP header with the help of neat diagram. 10

(b) What is UDP ? In case where reliability is not a primary importance, UDP would make a good transport protocol. Give example of specific case. 10

Or

10. Write short notes on the following : 5 each

(a) Digital signature

(b) Virtual terminal protocol

(c) SMTP

(d) VOIP

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