

CRASH COURSE

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10EC/TE71

Seventh Semester B.E. Degree Examination, May 2017 Computer Communication Networks

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. With a neat diagram of TCP/IP reference model, explain network and transport layers in detail. (10 Marks)
b. With a neat diagram, explain the operation of ADSL using discrete multitone modulation. (10 Marks)
- 2 a. Discuss the stop-and-wait ARQ protocol in detail. (10 Marks)
b. With a neat diagram, explain the HDLC frame format. (07 Marks)
c. The following character encoding is used in a datalink protocol: A : 01000111; B : 11100011; FLAG : 01111110, ESC: 11100000. Show the bit sequence transmitted (in binary) for the four character frame: A B ESC FLAG when each of the framing methods are used:
(i) Flag bytes with byte stuffing. (03 Marks)
(ii) Starting and ending flag bytes with bit stuffing. (03 Marks)
- 3 a. Explain CSMA\CD channel access method in detail. (10 Marks)
b. Explain controlled channel access methods in detail. (07 Marks)
c. A slotted ALOHA network transmits 200 bit frame on a shared channel of 200 kbps. What is the throughput if the system (all stations together) produces.
(i) 1000 frames per second.
(ii) 500 frames per second.
(iii) 250 frames per second. (03 Marks)
- 4 a. With a neat diagram explain 802.3 MAC frame format. (08 Marks)
b. With a neat diagram, explain Gigabit Ethernet encoding scheme. (06 Marks)
c. Explain two different services defined by IEEE 802.11. (06 Marks)

PART – B

- 5 a. Explain each of the following in detail: (i) Repeater (ii) Bridge (iii) Router. (06 Marks)
b. Explain in detail BUS Backbone and star backbone networks and how the remote LANS are connected. (06 Marks)
c. With appropriate diagrams explain in detail virtual LANS. What is the basis for VLAN configuration? (08 Marks)

- 6 a. In a block of addresses, we know the IP addresses of one host is 205.16.37.39/28. What are the first and the last addresses in this block and also find the total number of addresses. (03 Marks)
- b. An ISP is granted block of addresses with 190.100.0.0/16. The ISP needs to distribute these addresses to three groups of customers as follows:
 (i) The first group has 64 customers, each needs 256 addresses.
 (ii) The second group has 128 customers, each needs 128 addresses.
 (iii) The third group has 128 customers, each needs 64 addresses.
 Design subblocks and find out how many addresses are still available after these allocations. (07 Marks)
- c. Explain IPV4 datagram format. (10 Marks)
- 7 a. What is forwarding? Explain different forwarding techniques. (06 Marks)
- b. What is the difference between static and dynamic routing table? (04 Marks)
- c. Explain the distance vector routing algorithm for the example shown in Fig. Q7 (c). (10 Marks)

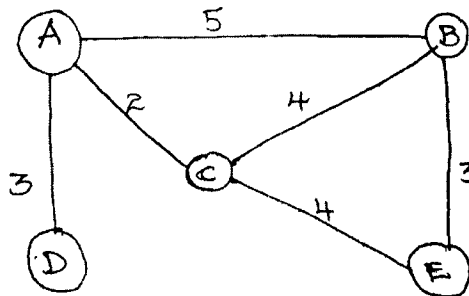


Fig. Q7 (c)

- 8 a. With a neat diagram, explain the TCP segment format. (10 Marks)
- b. What is resolver? Explain different address resolution methods. (10 Marks)

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