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B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2006.

Sixth Semester

Computer Science and Engineering

CS 339 — COMPUTER NETWORKS

Time : Three hours , Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Consider the problems that might occur when trying to do a 2–hour file transfer between two machines with a 1–hour mean time between crashes. After each transfer, was aborted, the whole transfer would have to start over again and would probably fail again the next time as well. How does the session layer eliminate this problem?

2. State which layer of the TCP/IP reference model the following protocols are present.

   (a) TCP

   (b) SMTP.

3. State the principle of operation of stop and wait protocols.

4. What is piggybacking?

5. Identify the classes of the following IP address.

   (a) 227.12.14.87

   (b) 134.11.78.56.

6. Given an ethernet address, the corresponding IP address has to be identified. Which protocol is used for this purpose?

7. When does the silly window syndrome problem occur?

8. Does TCP support multicasting? Explain.

9. What is HTTP used for?

10. What is cryptology?

PART B — (5 × 16 = 80 marks)

11. (i) Which protocol in the TCP/IP protocol suite supports electronic mail on the internet? Discuss how it works. Also state how multimedia messag[e] can be transmitted. (

(ii) What is DNS? State how DNS organizes the name space and how th[e] domain name space is divided into. Also distinguish between a full[y] qualified domain name and a partially qualified domain name. (8

12. (a) (i) Define signal to noise ratio and state Shanon's result on th[e] maximum data rate of a noisy channel. (5

(ii) List and discuss the components in an optical transmission system. (5

(iii) Explain the terms flow control, addressing and routing. (6

Or

(b) (i) What is hand off? Discuss. (5)

(ii) What are transponders? Discuss. (5)

(iii) Distinguish between circuit switching, message switching, an[d] packet switching. (6)

13. (a) (i) Discuss the three features provided by point to point protocol. (6)

(ii) State and discuss the two commonly used techniques for flow control. (6)

(iii) Briefly discuss the major functions that has to be carried out by the data link layer. (4)

Or

(b) (i) Discuss the two schemes provided in IEEE 802.16 to allocate bandwidth. (8)

(ii) Discuss how the data link layer is divided into in the IEEE 802.16 standard. (8)

(a) (i) Perform a comparative study on datagram subnet and virtual circuit subnet w.r.t. the following issues : circuit setup, addressing, state information, routing, effect of router failures and quality of service. (10)

(ii) Distinguish between adaptive and non adaptive routing algorithms. (3)

(iii) Discuss flooding and selective flooding. (3)

Or

(b) (i) What is a multiprotocol router? Discuss. (4)

(ii) In classful addressing how is an IP address in class A, class B and class C divided into? Discuss. (6)

(iii) Given the address 23.56.7.91 and the default class A mask, find the beginning address (network address). (3)

(iv) Given the address 201.180.56.5 and the class C default mask, find the beginning address (network address). (3)

15. (a) (i) List and state the meaning of the socket primitives used in Berkeley UNIX for TCP. (8)

(ii) With a neat sketch discuss the working of remote procedure call. (8)

Or

(b) (i) List and discuss the primitives for a simple transport service. (8)

(ii) Discuss how multiplexing in the transport layer. (8)

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