Register Number: ……

B.E. DEGREE EXAMINATIONS: APRIL/MAY 2012

Sixth Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

ECE114: Computer Networks

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which of the following layer encapsulates the data bits into frames having a header and trailer?

   a. Application layer b.Data link layer c. Network layer d. Physical layer

2. A router

   a. Determines on which outgoing link a packet is to be forwarded

   b. forwards a packet to the next free outgoing link

   c. forwards a packet to all outgoing links

   d. forwards a packet to all outgoing links, except the link upon which the packet originated

3. The signal has two data levels with a pulse duration of 1ms.The bit rate in bps is given by

   a.2000 b.1000 c.100 d.3000

4. Hamming code is a method for

   a. Error correction b. Error detection c. Error encapsulation d. (a) and (d)

5. A one to all Communication between a source and all hosts on a network is classified as a ---- ----

   a. Unicast b. multicast c. broadcast d. transmitting data

6. Class ------ has the greatest number of hosts per given network address.

   a. A b. B c. C d. D

7. Which one of the following is an error reporting protocol?

   a. ARP b. ICMP c. TCP d. UDP

8. In TDM, the transmission rate of the multiplexed path is usually _____ the sum of the transmission rates of the signal sources.

   a. Greater than b.less than c. equal to d. Not related to

9. How many user agents are required in sending messages?

a. Two b. Three c. Four d. Five

10. IPsec provides security at the ----------layer

a.Application b. Transport c. Network d. Data link

PART B (10 x 2 = 20 Marks)

11. State the objectives of data communication networks.
12. State the significance of cable modem.
13. Why is coaxial cable superior to twisted pair cable?
14. For a k-bit numbering scheme, what is the range of sequence numbers used in sliding window protocol?
15. Which class of IP addresses is used for multicast communication?
16. List any three methods to improve QOS parameter.
17. Name the timers used by TCP.
18. Mention the reasons for network congestion.
19. What is the purpose of DNS?
20. Compare private key and public key encryption.

PART C (5 x 14 = 70 Marks)

21.a) (i) Explain the characteristics of different types of Transmission media (7)

(ii) Discuss the various layers and their function in ISO/OSI model. (7)

(OR)

b) (i) Explain various components and topologies of data communication networks. (7)

(ii) Discuss the design objectives of TCP/IP model. (7)

22. a) (i) Determine the block check sequence for the following data (11010101111) and generating polynomial(110011) (7)

(ii) Explain forward error correction with suitable example. (7)

(OR)

b) (i) Consider the use of 10 K-bit size frames on a 10 Mbps satellite channel with 270 ms delay. What is the link utilization for stop-and-wait ARQ technique assuming $P=10^{-3}$? (7)

(ii) Discuss Go back N ARQ technique. (7)

23.a) Explain the function of network layer and discuss IP addressing methods.

(OR)

b) Discuss routing methods and compare the performance of various routing schemes.

24.a) What is the need for multiplexing? Explain and compare TDM and FDM techniques.

(OR)

b) What is meant by network congestion? Explain congestion control mechanisms.

25.a) (i) What are the security services required to protect the network? Explain. (7)

(ii) Discuss the structure of any one encryption algorithm. (7)

(OR)

b) Write brief note on (i) SMTP (8)

(ii) WWW (6)

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