

16/05/19 (Ans)

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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APR / MAY 2019

ELECTRONICS AND COMMUNICATION ENGINEERING

VI Semester

EC 8602 COMMUNICATION NETWORKS

(Regulation 2012)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Define protocol and interface
2. Given a channel with signal to noise ratio of 20dB , the bandwidth of the channel is 2MHz. Find the capacity.
3. Give the disadvantages of stop and wait protocol.
4. In a token ring network there are 4 stations connected in ring format. The first station is holding the token. If the token holding time for each node is 10ms and the propagation delay between any two nodes in the ring is 1µsec. Find the time at which the third node gets its chance to transmit.
5. Explain the concept behind CSMA/CD and name the standard that uses it.
6. For an IP address 10.17.5.122 and subnet mask 255.255.128.0, what is the subnet address?
How many hosts per subnet are possible?
7. How a network is getting congested?.
8. Discuss the disadvantages of Asymmetric key cryptography.
9. Draw a cross bar switch for 8x8 users . find the number of cross points.
10. Determine the implementation complexity of the TS switch, where the number of TDM input lines $N = 80$ and assume each input line contains a single DS1 signal (24 channels). Furthermore assume a one-stage matrix is used for the space stage.



Part – B (5 x 16 = 80 marks)

11. With neat diagram explain the functions of each layer in a TCP/IP reference model .(10)

(iii) For each of the following four networks, discuss the consequences if a connection fails. (6)

- a. six devices arranged in a bus topology
- b. four devices arranged in a ring topology
- c. five devices arranged in a mesh topology

12. a) i) Discuss the principle of Go-Back-N flow control mechanism. Draw the time line diagram and explain how loss of a frame and loss of an ACK are handled (10)

ii) Given a 10-bit message 1010001101, and a 6-bit divisor 110101, generate 5 bit check bits using CRC concept. At the receiver, the bit stream received is 101000110101010. Check if the code is received without error. (6)

OR

- b) i) Draw and explain the frame structure of IEEE 802.3. (8)
- ii) Draw and explain the principle of operation of IEEE 802.5. (8)

13. a) i) Differentiate circuit switching, virtual circuit switching, packet switching with the required flow diagram. (10)

ii) Find the route from node A to D using Dijkstra's routing algorithm for the fig.1. (6)

OR

b) i) Compare ARP and RARP. Discuss on the steps involved in ARP Process. (6)

ii) Find the shortest path between node A and node D for the following network using Link State Routing Protocol (10).

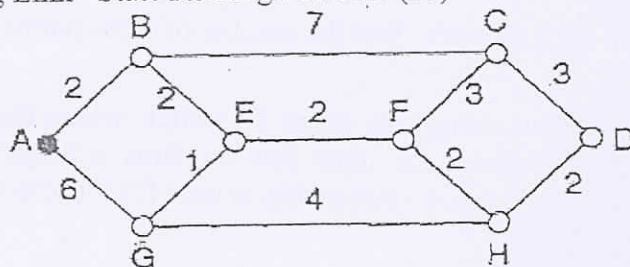


Fig.1

14. a) With relevant diagrams explain i) TCP ii) UDP iii) HTTP and iv) FTP (16)

OR



- b) i) Discuss about the various functions of Network Management System in detail (8)
 (ii) With relevant example, explain the RSA algorithm. (8)
15. a) Explain the Kendall notation $M/M/1$. Also derive the blocking probability (Grade of Service) for a $M/M/1$ system under blocked calls cleared model. (16)
- OR
- b) i) Draw and explain the principle of operation for the STS and TST switch. (8)
 ii) with required diagram explain the digital cross connect system. (8)

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