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10CS64

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024
Computer Networks – II

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO full questions from each part.***

PART – A

1 a. Why is packet switching more suitable than message switching for interactive applications? Compare the delays in datagram packet switching and message switching. **(06 Marks)**

b. Define routing and forwarding. What are the goals of a routing algorithm? Discuss about flooding. **(06 Marks)**

c. Develop an algorithm to find shortest paths from a node to all nodes of a graph. Determine shortest path from node five (5) to other nodes in a given graph. Fig.Q1(c). **(08 Marks)**

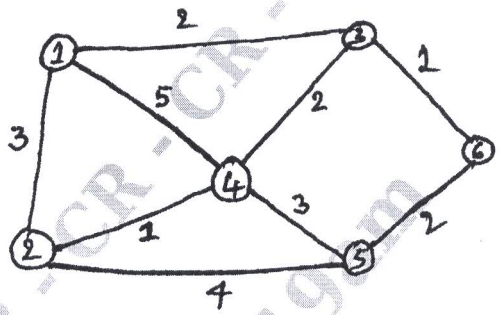

Fig.Q1(c)

2 a. State the purpose of traffic management at flow level and discuss about congestion control algorithms. **(08 Marks)**

b. What is fragmentation? What are the causes for fragmentation? **(08 Marks)**

c. Identify the address class of the following input addresses:
(i) 14.6.12.1
(ii) 123.14.121.14
(iii) 197.125.1.1
(iv) 243.18.16.2 **(04 Marks)**

3 a. Identify the classes of following IP-address:
(i) 111.168.70.5 (ii) 199.133.5.81
(iii) 139.0.0.99 (iv) 192.168.72.1 **(04 Marks)**

b. What is supernetting? Explain with an example. **(06 Marks)**

c. Find the subnet address for the IP : 150.100.12.176 consider 7-bits for host address. **(04 Marks)**

d. Compare and contrast IPV_4 with IPV_6. **(06 Marks)**

4 a. Give the general structure of TCP segment and write the purpose of each element in it. **(06 Marks)**

b. Explain the steps involved in mobile IP routing. **(06 Marks)**

c. Show how TCP connection is established using three way handshaking? Why unique initial sequence number is needed for each new connection? **(08 Marks)**

PART – B

5 a. Explain how recursive and iterative mapping of IP addresses are done in DNS servers. **(06 Marks)**

b. Briefly explain the steps of DES algorithm. **(06 Marks)**

c. Which are the types of attacks that can occur on an internet infrastructure? Explain. **(08 Marks)**

6 a. Discuss the different resource allocation schemes. **(06 Marks)**

b. What are the QoS methods in integrated service? Explain admission control and RSVP protocol. **(07 Marks)**

c. Write a note on virtual private network (VPN). **(07 Marks)**

7 a. A source bandwidth 8 kHz is sampled at Nyquist rate. If the result is modeled using any value from $[-2, -1, 0, 1, 2]$ and corresponding probabilities [0.05, 0.05, 0.08, 0.30, 0.52] then find its entropy. **(06 Marks)**

b. What is the purpose of RTP? Discuss the design of its packet. **(06 Marks)**

c. Explain the steps of Huffman encoding and perform Huffman encoding for a source generating $\{a_1, a_2, a_3, a_4, a_5\}$ with probabilities {0.52, 0.3, 0.08, 0.05, 0.05} respectively. **(08 Marks)**

8 a. Explain with neat diagram, Decentralized Energy Efficient Propagation protocol (DEEP). **(08 Marks)**

b. Explain low energy adaptive clustering hierarchy. **(05 Marks)**

c. Explain adhoc on demand distance vector routing protocol. **(07 Marks)**

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