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15CS52

Fifth Semester B.E. Degree Examination, July/August 2022
Computer Networks

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. List the major challenges that future P_2P applications are facing. **(03 Marks)**
   b. List some common HTTP response status codes and associated phrases. **(05 Marks)**
   c. Discuss with example how HTTP allows a cache to verify that its objects are up-to-date. **(04 Marks)**
   d. Suppose that institutional LAN is 100Mbps link and a router in the institutional network and router in the Internet are connected by a 15Mbps link.

   i) Calculate traffic intensity on the LAN.

   ii) Calculate traffic intensity on the access link (from the internet router to institutional router). **(04 Marks)**

OR

2 a. Compare SMTP and HTTP. **(03 Marks)**
   b. Discuss DNS message format. **(08 Marks)**
   c. Design and develop a client-server application using TCP to implement that server converts string to uppercase. **(05 Marks)**

Module-2

3 a. Explain the connectionless multiplexing and demultiplexing. **(04 Marks)**
   b. Design RDT 2.1 sender and receiver protocol (reliable data transfer). **(08 Marks)**
   c. Assume that RTT is approximately 30 milliseconds. Suppose that two systems are connected by a channel, supporting stop and wait protocol with a transmission rate of 1Gbps with a packet size of 1000 bytes per packet including both header fields and data.

   i) Calculate the time needed to actually transmit the packet into the 1Gbps link.

   ii) Calculate sender utilization. **(04 Marks)**

OR

4 a. Explain in brief selective repeat operation. **(08 Marks)**
   b. Explain the congestion scenario that two connections sharing a single hop with infinite buffers. **(08 Marks)**

Module-3

5 a. Explain different ways of switching. **(06 Marks)**

b. Consider the following network and compute the shortest path from 'x' to all network nodes using link-state algorithm. **(10 Marks)**
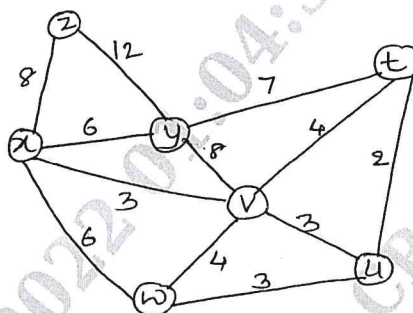

Fig.Q.5(b)

OR

6 a. What is hot-potato routing? Explain with an example. **(05 Marks)**

b. Discuss IPv6 packet format. **(05 Marks)**

c. Explain different controlled flooding mechanisms. **(06 Marks)**

Module-4

7 a. Explain 3G system architecture. **(08 Marks)**

b. Bring out the mechanism of indirect routing to a mobile node in mobility management. **(08 Marks)**

OR

8 a. What is agent discovery in mobile node? Illustrate some of the key fields in the agent advertisement message. **(08 Marks)**

b. Define handoff. Explain the steps in accomplishing a handoff between base stations with a common MSC. **(08 Marks)**

Module-5

9 a. Discuss the properties of video and audio. **(04 Marks)**

b. Discuss the following
   i) UDP streaming
   ii) HTTP streaming. **(06 Marks)**

c. Explain the steps involved in operations of Content Distribution Networks (CDN). **(06 Marks)**

OR

10 a. Discuss FIFO and priority queuing scheduling mechanism. **(08 Marks)**

b. Explain the Diffserv internet architecture. **(08 Marks)**

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