8E4088

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B. Tech. VIII Semester (Main/Back) Examination-2014

Electronics & Communiction.

8EC1 Computer Networks

Time : 3 Hours **Maximum Marks : 80**
Min. Passing Marks : 24

Instructions to Candidates:

*Attempt any **five** questions, selecting **one** question from **each unit**. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)*

Unit - I

1. a) Differentiate Packet and circuit switching by taking important features one by one in a tabulated form. **(8)**

   b) In M/M/1 queuing system, calculate average waiting time of a packet in the queue (Time until the start of service to the packet). **(8)**

OR

1. a) Packets arrive at a router with mean arrival rate of 5 per second. The average packet length is 144 bytes and it is assumed that packet length is exponentially distributed. Line speed from the router to the WAN is 9600 bps. Calculate :

   i) Mean No. of packets into the system

   ii) Average time spent by packet in the system

   iii) Calculate server utilization for lesser than four packets in the queue .

   3+3+4=(10)

   b) Draw state transition diagram for M/M/m/m queuing system. Write flow Balance equation for the given queue. **(6)**

Unit - II

2. a) In a Go back 5 sliding Window protocol, Node A and Node B are under duplex transmission mode. Packets transmitted from Node B are 1.5 times

bigger than packets transmitted from Node A. Discuss sliding window protocol for the case of transmission of packets from Node A and piggbacked ACK issuance from Node B. (Assume zero time out interval and zero transmission delay). **(12)**

b) Discuss selective repeat ARQ protocol briefly. **(4)**

OR

2. a) Draw HDLC frame format and discuss about it briefly. **(4)**

b) Name the different types of frames for the central field of HDLC protocol. Discuss about these different types of frames by drawing their frame formats. **(12)**

Unit - III

3. a) Draw the frame format of IEEE 802.3 protocol and discuss about it. **(8)**

b) Discuss routing implementation in the Datagram subnet by taking a suitable example. **(8)**

OR

3. a) Compare different CSMA protocols by showing their throughput diagrams and discussing key features briefly. **(10)**

b) What do you understand by static and dynamic channel allocation? Classify same known ways of communication based on these two approaches. **(6)**

Unit - IV

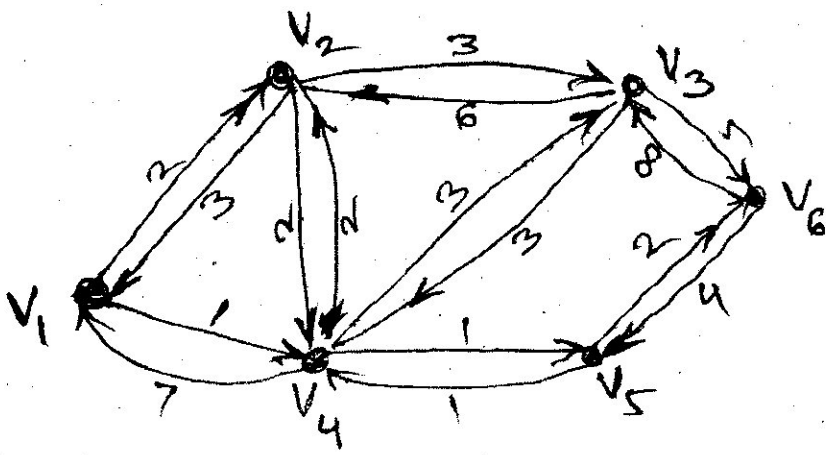
4. a) Draw and discuss IPV 6 protocol header. **(6)**

b) What is the difference between a front address, a logical address, and a physical address? **(6)**

c) State the names of popular protocols used by Application layer, transport layer, and Network layer. **(4)**

OR

4. For a given weighted graph, calculate shortest path from vertex 1 to all other vertices by Dijkstra's Algorithm.



(16)

Unit - V

5. a) Discuss Role of address field in a virtual circuit network. **(6)**

   b) Discuss leaky Bucket algorithm for congestion central **(10)**

OR

5. a) Discuss important ATM service categories and state about their specific use. **(8)**

   b) Discuss the following ATM traffic descriptors.

      i) Sustainable cell rate

      ii) Cell loss ratio

      iii) Peak to peak cell delay variation

      iv) Maximum burst size. **(8)**
