Total No. of Questions :5]

Roll No. 9E8CA140D06

MCA - 305

MCA. III Semester

Examination, December 2014

Computer Networks

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) What is modulation and where is it used?

   b) What is the difference between internet and ISDN is both are same or is there any specific difference?

   c) Calculate the Shannon capacity in the following cases:

      i) Bandwidth = 20 KHz and SNRdB = 40

      ii) Bandwidth = 200 KHz and SNRdB = 0.6.

   d) Explain the call flow in NSS and what is sri signals.

   OR

   How does p-persistent method improve efficiency?

Unit - II

2. a) What is a protocol? What are its key elements?

b) How many check bits are there in hamming code in data unit of size M?

c) What would be the relationship among sender's and receiver's window size in selective repeat protocol.

d) Discuss the principle of stop and wait flow control algorithm. Draw time line diagrams and explain how loss of a frame and loss of an ACK are handled. What is the effect of delay-bandwidth product on link utilization?

OR

Given a remainder of 111, a data unit of 10110011 and a divisor of 1001, is there an error in the data unit. Justify your answer with necessary principles.

Unit - III

3. a) What happens if the token lost in token ring IEEE 802.5?

b) Differentiate between GSM and CDMA.

c) How does an FDDI node determine whether it can send asynchronous traffic and synchronous traffic?

d) Discuss 802.3 MAC frame format. Mention the restrictions imposed on minimum and maximum length of a 802.3 frame.

OR

Explain the working mechanism of following devices used to connect LANs.

i) Bridge

ii) Routers

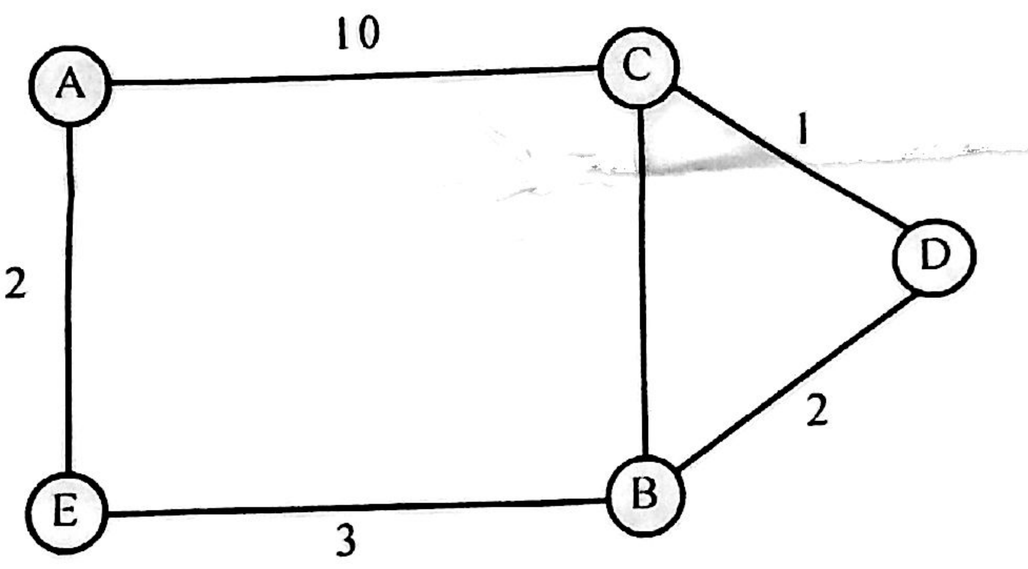
Unit - IV

4. a) Compare circuit and virtual circuit based packet switching in respect of queuing and forwarding delays.

   b) What is the address in a class A subnet with the IP address of one of the hosts as 25.34.12.56 and mask 255.255.0.0?

   c) Why is UDP pseudo header included in UDP checksum calculation? What is the effect of an invalid checksum at the receiving UDP?

   d) For the following network, develop the datagram forwarding table for all the codes. The links are labeled with relative costs. The table should forward each packet via the least cost path to destination.



OR

Illustrate the features of TCP that can be used by the sender to insert record boundaries into the byte stream. Also mention their original purpose. When can an application make use of UDP?

Unit - V

5. a) What can be done to secure the virtual terminal interfaces on a router?

   b) Write down the full form of PING. What happens when one ping a DNS server IP address?

c) List out how many root DNS servers are available in the world.

d) Explain how Basic Encoding Rule (BER) is used in SNMP. What are the types of traps used in SNMP?

OR

Discuss the operations needed to support a wide range of multimedia applications.

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