No. of Printed Pages : 3

MCS-042

MCA (Revised)

Term-End Examination

03832

June, 2017

MCS-042 : DATA COMMUNICATION AND COMPUTER NETWORKS

Time : 3 hours *Maximum Marks : 100*

Note : *Question no. **1** is **compulsory**. Attempt any **three** questions from the rest.*

1. (a) Discuss and illustrate flow control mechanisms in Data Link Layer and Transport Layer. *10*

(b) Explain the various steps in conversion of an analog signal to a digital signal. What is the basis of choice of number of quantization levels ? *10*

(c) Why is CSMA/CD used in Wireless LAN ? What can be the problem if CSMA/CD is used in the above ? *10*

(d) Explain the functionality of the upper four layers of the OSI model. 5

(e) Determine the maximum bit rate for a channel having bandwidth equal to 1600 Hz, if S/N ratio is 0 dB. 5

2. (a) What are the limitations of circuit switching ? How are these overcome in packet switching ? 10

(b) Why are pipeline protocols used in data link layer ? Illustrate Go back N with the help of an example. 10

3. (a) Explain CRC error detection method. Find whether there are errors in the received codeword 1100100101011, when the polynomial is 10101 ? 10

(b) In a slotted system, the average load is increased from 1 packet per packet time to 1·5 packets per packet time. What is the percentage change in the throughput ? 10

4. (a) How does Link State Routing differ from Distance Vector Routing ? Give the different steps in implementing Distance Vector Routing protocol. *10*

(b) In a classful addressing, draw a block diagram to show the address space division into various classes. A router outside the organization receives a packet with destination address 190.240.7.91. Describe how it finds the network address to route the packet. *10*

5. (a) Explain Nagle's algorithm. What is its significance ? Give a scenario where this algorithm is not applicable. *10*

(b) Explain the various steps in implementing DES using an appropriate diagram. Why is triple DES used ? *10*