53 (EC-604) CMNT

2015

COMMUNICATION NETWORK

Paper : EC-604

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* The following character encoding is used in a data link protocol :

A : 01000111 ; B : 111000111 ;

FLAG : 01111110 ; ESC : 11100000.

Show the bit sequence transmitted (in binary) for the four-character frame : A B FSC FLAG when each of the following framing methods are used :

(a) character count, (b) Flag bytes with byte stuffing, (c) starting and ending flag bytes, with bit stuffing.

3+3+3=9

(b) Write the salient features of HDLC. Discuss the OSI Reference Model. 4+7=11

2. (a) Find the range of addresses in the following blocks : 4+4=8

(a) 200.17.21.128/27 ;

(b) 123.56.77.32/29

(b) Discuss three-way handshaking of TCP connection establishment. What is the usefulness of piggybacking? 9+3=12

3. (a) What are the different types of web documents? 9

(b) Cite the advantages of $IP \vee 6$ over $IP \vee 4$. 5

(c) A host is sending 100 datagrams to another host. If the identification no. of the first datagram is 1024, what is the identification no. of the last (in $IP \vee 4$). 6

4. (a) Discuss the functioning of TELNET for remote logging. 12

(b) How is HTTP related to WWW. 3

(c) Define framing and the reason for its need. 5

5. *(a)* What are the various closed-loop congestion policies ? Explain. 10

(b) What is the importance of IGMP ? 4

(c) How does recursive resolution differ from iterative resolution ? 6

6. *(a)* Why do you need a DNS system ? What is the purpose of inverse domain ? 3+3=6

(b) An *IP* v 4 fragment has arrived with an offset value of 100. How many bytes of data were originally sent by the source before the data in this fragment ? 3

(c) Discuss the functioning of SMTP. Explain the general architecture of e-mailing system. 4+7=11

7. *(a)* Explain the functions of various layers of ATM. Discuss an ATM cell. 7

(b) What are the various ICMP error-reporting messages ? 7

(c) Write a short note on Asymmetric Cryptography. 6
