(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2474 Roll No. | | | | | | | | | | |

B. Tech.

(SEM. VI) THEORY EXAMINATION 2011-12

COMPUTER NETWORK

Time : 3 Hours *Total Marks : 100*

Note : Attempt ***all*** questions. All questions carry equal marks.

1. Attempt any ***four*** parts of the following : **(5×4=20)**

   (a) Describe the TCP/IP protocol suite in brief.

   (b) What does the Nyquist theorem have to do with communication ?

   (c) Define a switch. List the three conventional switching methods.

   (d) List the layers of the Internet model.

   (e) What is ISDN ? Draw the ISDN communication architecture.

   (f) A file size is 0.008 GB. How long does it take to download this file using a 8-MBPS channel ?

2. Attempt any ***two*** parts of the following : **(10×2=20)**

   (a) Answer each question :

      (i) What is IEEE 802.11 standard ?

      (ii) Compare and contrast CSMA/CD with CSMA/CA.

(b) Which of the following CRC generators guarantee the detection of a single bit error ?

(i) $x + 1$

(ii) $x^2 + 1$

(c) Answer each question :

(i) How does the Ethernet address 1A : 3B : 4C : 6D : 2E : 1F appear on the line binary ? Explain.

(ii) Define and explain the type of the following destination address :

FF:FF:FF:FF:FF:FF

3. Attempt any ***two*** parts of the following : **(10×2=20)**

(a) Answer each question :

(I) Find the class of each address :

(i) 140.213.10.80

(ii) 52.15.150.11

(II) What is the type of the following addresses ?

(i) 4F::A234:2

(ii) 52F::1234:2222

(b) What is unicast routing ? Discuss unicast routing protocols.

(c) What is congestion ? Name the techniques that prevent congestion. Discuss any two techniques in brief.

4. Attempt any ***two*** parts of the following : **(10×2=20)**

(a) What is UDP ? What is the maximum and minimum size of a UDP datagram ? Also discuss the use of UDP.

(b) The following is the dump of a TCP header in hexadecimal format :

05320017 00000001 00000000 500207FF 00000000

(i) What is the sequence number ?

(ii) What is the destination port number ?

(iii) What is the acknowledgment number ?

(iv) What is the window size ?

(c) What is cryptography ? Differentiate between symmetric key cryptography and asymmetric-key cryptography.

5. Write short notes on any ***four*** parts of the following : **(5×4=20)**

(a) DNS in the Internet

(b) Electronic mail

(c) SMTP

(d) File transfer protocol

(e) Voice over IP

(f) SNMP.