Roll No. ....

EC/EX–702

B. E. (Seventh Semester) EXAMINATION, June, 2009

(Common for EC & EX Engg.)

COMPUTER NETWORK

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Explain OSI reference layers with their duties.   10

   (b) What are various Network Topologies ? Explain with example.   10

2. (a) Compare circuit packet and message switching.   10

   (b) (i) A binary signal is sent over a 3-kHz channel whose signal to noise ratio is 20 dB. What is the maximum achievable data rate ?   5

   (ii) What is the percent overhead on a T_1 (i. e. 1·544 Mbps) are not delivered to end user ?   5

3. (a) What are various multiplexing techniques ? Differentiate multiplexer and concentrator.   10

   (b) Explain slotted ALOHA protocol. Derive performance formula for slotted ALOHA.   10

P. T. O.

4. (a) A group of N stations share a 56 kbps pure ALOHA channel. Each station outputs a 1000 bit frame on an average of once every 100 sec. even if the previous one has not yet been sent. (e. g. the stations are buffered) What is the maximum value of N ?   10

   (b) What is adaptive routing algorithm ? Explain various types of adaptive algorithm.   10

5. (a) Construct virtual circuit table for the following virtual circuits :   10

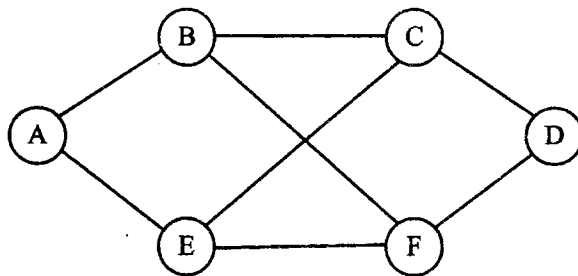 | Originating at A | Originating at B |
   |---|---|
   | 0 – ABCD | 0 – BCD |
   | 1 – AEFD | 1 – BAE |
   | 2 – ABFD | 2 – BF |
   | 3 – AEC | |
   | 4 – AECDFB | |

   (b) Explain the working of source routing bridges with example.   10

6. (a) Explain ISDN system architecture.   10

   (b) Explain in brief session layer designing issue.   10

7. (a) Explain distribution system in brief.   6

   (b) What are different services offered by presentation layer ?   7

   (c) Explain various compression technique in brief.   7

9. Write short notes on any *three* of the following :   20

   (i)   Modem

   (ii) Packet Radio Network

   (iii) CSMA/CD Protocol

   (iv) B – ISDN

   (v) Mobile Networking