

**B.Tech. – VIEP – ELECTRONICS AND
COMMUNICATION ENGINEERING
(BTECVI)**

00885

**Term-End Examination
June, 2014**

**BIELE-016 : DATA COMMUNICATION
AND NETWORK**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks. Assume missing data suitably.

1. Explain LAN, MAN and WAN communication systems in detail with a suitable comparative chart. 10

2. (a) What is Internetworking ? How may networks differ from each other and be connected by different devices ? 5

- (b) Explain concatenated virtual circuits of virtual circuit subnets in detail. 5

3. The following character encoding is used in a data link protocol :

A : 01000111

B : 11100011

FLAG : 01111110

ESC : 11100000

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

- (a) Character count
 - (b) Flag bytes with byte stuffing
 - (c) Starting and ending flags bytes with bit stuffing 10
4. What is protocol verification model ? Explain State machine models and Petrinet models with neat block diagrams. 10
5. (a) Consider the delay of Pure ALOHA versus Slotted ALOHA at low load. Which one is less ? Explain your answer. 5
- (b) What is collision-free protocol ? Explain 'bit map protocol' and 'binary countdown protocol' in detail. 5
6. Write short notes on the following : 2×5=10
- (a) Broadcast Routing
 - (b) Multicast Routing
7. What is traffic shaping ? Explain 'Leaky Bucket Algorithm' with neat diagram in detail. 10

8. Explain Carrier Sense Multiple Access Protocols (CSMA). How is CSMA different from collision free protocols ? 10
9. (a) What is Real-time Transport Protocol (RTP) ? Explain the position of RTP in protocol stack with packet nesting. 5
- (b) What is Transmission Control Protocol (TCP) ? Draw and compare the layout of TCP and IP. 5
10. What is the principle of Integrated Services Digital Network (ISDN) ? Draw and explain the conceptual view of ISDN from a user point of view. 10
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