

**B.TECH. IN ELECTRONICS AND
COMMUNICATION ENGINEERING (BTECVI)**

Term-End Examination

December, 2013

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

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks. Missing data may be suitably assumed.

1. Explain both ALOHA and slotted ALOHA. Is slotted ALOHA always better than ALOHA ? If not, please give an example of a situation in which simple ALOHA is preferable. In either case, please specify why. 10
2. Compare between circuit switching and packet switching w.r.t : 10
 - (a) Transmission delay
 - (b) Path
 - (c) Bandwidth
 - (d) Intermediate storage
3. What is IDP ? What is the maximum and minimum size of a UDP datagram ? Also discuss the use of UDP. 10
4. (a) Find the class of each address : 5
 - (i) 140.213.10.80
 - (ii) 52.15.150.11(b) What is the type of the following addresses ? 5
 - (i) 4F :: A234 : 2
 - (ii) 52F :: 1234 : 2222

5. Discuss token bucket algorithm. How does token bucket overcomes the short coming of leaky bucket algorithm ? 10
6. Draw the TCP/IP network architectural mode and explain the features of various layers. Also list the important protocol at each layer and describe its purpose. 10
7. (a) Define and explain the various frame type in HDLC. 5
 (b) Define the term "IP address", "Port address and "hardware/physical address." Also explain the term "address pair and ARP cache." 5
8. What do you understand by non-persistent CSMA ? Why do we prefer CSMA over ALOHA ? Explain CSMA/CD and CSMA/CA in detail. 10
9. Several protocols such as Ethernet, Token ring, FDDI are used commonly in LAN. Discuss the functionalities of these three technologies and difference among them ? 10
10. (a) Explain the relationship between Data rate and Bandwidth. 5
 (b) Explain the meaning of the following operational modes of a communication channel : 5
 (i) Simplex and Duplex
 (ii) Multicast and Broadcast.
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