

Total number of printed pages—

44 (5) DCCN 5.3

2009

**DATA COMMUNICATION AND
COMPUTER NETWORK**

Paper : 5.3

Full Marks : 80

Time : Three hours

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

Answer any five questions.

- ✓ 1. ✓ (a) Mention *five* advantages of using
Computer Networks. 4
- (b) What are the merits and demerits of
Satellite communication? 4
- ✓ (c) Distinguish between connection-oriented
and connectionless services. 4
- ✓ (d) How Gateways differ from Routers?
Mention their important functions. 2+2=4

Contd.

2. ✓ Describe the key assumptions for formulating a Channel allocation method.

✓ Explain the pure ALOHA protocol. Distinguish between slotted ALOHA and pure ALOHA. 4+4=8

✓ Draw the IEEE 802.3 Ethernet frame format and explain the various fields. 4

3. ✓ (a) Write the different functions of the Data Link Layer. 4

✓ (b) Explain the Sliding-Window protocol with diagram. 4

✓ (c) Discuss the different methodologies for controlling error and flow by data-link layer. 8

4. ✓ (a) Highlight the internal organization of the Network Layer. 4

✓ (b) Discuss the principles of Link-State Routing. 4

Abt. ✓ (c) What is Internet protocol? Discuss the IP address structure and frame format. 2+3+3=8

✓ (a) What do you mean by Virtual Circuit? Briefly explain its working.

✓ (b) Discuss the UDP protocol.

✓ (c) Explain Leaky-Bucket algorithm and distinguish it from Token-Bucket algorithm. 6+2=8

5. (a) What is CRC and its utility? Generate CRC for the bit stream 1101011011, where the polynomial is $x^4 + x + 1$. 2+6=8

(b) What are the major components for building a standard Web page in HTML? Describe these components briefly. 4+4=8

✓ 7. Write short notes on: (any four) 4×4=16

✓ (a) Star and Ring topology

✓ (b) Quality of Service in Network Layer

(c) Client-Server Model

✓ (d) TCP

✓ (e) Electronic Mail

✓ (f) WWW.