

Total No. of printed pages = 4

Et-602/DC&N/6th Sem/2016/N

**DATA COMMUNICATION
AND NETWORKING**

Full Marks – 70

Pass Marks – 28

Time – Three hours

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

Answer any *five* questions.

1. (a) What is connection-oriented and connection-less communication ? 3
- (b) Define synchronous communication and asynchronous communication. 3
- (c) What are the advantages of setting up a computer network ? 3
- (d) Draw and write the characteristics of Star and Bus topology of LAN. 5

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2. (a) Describe with diagrams the different types of media used for data communication. 7
- (b) Explain Bridge, Router and Hubs in detail. 7
3. Draw and explain the functioning of the different layers of OSI (Open Systems Interconnection) reference model. 14
4. (a) What is Carrier Sense Multiple Access / Collision Detection (CSMA/CD) protocol ? 5
- (b) What is token ring and how it works ? 4
- (c) Discuss about the ATM (Asynchronous Transfer Mode) structure used for high speed connection-oriented networking. 5
5. (a) Explain the Integrated Services Digital Network (ISDN). 7
- (b) What are the different ISDN standards ? 3
- (c) Write a few advantages and applications of ISDN. 4

6. (a) State the different standards introduced by IEEE for LANs. 3
- (b) Draw and explain the 802.5 frame format. 5
- (c) Explain briefly about a workgroup and a client-server model of LAN. 6
7. (a) What is the role of MODEM in a telephone system ? 2
- (b) Explain the operating modes of low speed MODEM. 4
- (c) Describe the different hardware and software required to set-up a Local Area Network. 6
- (d) What is RS-232 standard ? 2
8. (a) Mention the features of the TCP/IP protocol. 7
- (b) How IP numbers are classified in an IP addressing scheme ? 4
- (c) Name some network operating system (NOS) software. 3

9. Write short notes on any *two* : $7 \times 2 = 14$

(a) 8251 USART

(b) Goals of internet

(c) Data Link Protocols

(d) Simplex, half duplex and full duplex

(e) HTML, TELNET and EMAIL.