

**B.Tech. Degree VI Semester (Supplementary)
Examination in Computer Science and
Engineering, December 2002**

**CS 601 DATA COMMUNICATIONS
(1995 Admissions)**

Time: 3 Hours

Maximum Marks: 100

- I. (a) Explain the architecture of ISDN with the help of a diagram. (15)
(b) What are the different modes of communication? Explain. (10)
- OR**
- II. (a) What is modem? Explain the components and working of a split stream modem. (15)
(b) Briefly discuss on different types of network organization. (10)
- III. (a) Distinguish between analog and digital transmission. (5)
(b) Give a brief description on telephone network. (10)
(c) A simple telephone system consists of 2 end offices and a single toll office to which each end office is connected by a 1MHz full-duplex trunk. The average telephone is used to make 4 calls per 8 hour workday. The mean call duration is 6 min. Ten percent of the calls are long distance (ie. Pass through toll office). What is the maximum number of telephones an end office can support? (Assume 4KHz per circuit). (10)
- OR**
- IV. (a) Write short note on PAM. (5)
(b) What are the transmission impairments? Explain. (10)
(c) Briefly explain the facilities provided by voice grade channel. (10)
- V. (a) Write short note on block codes. (5)
(b) What is ARQ? Explain. (10)
(c) Explain the principle of Error detection using a diagram and example. (10)
- OR**
- VI. (a) Discuss on different error detection schemes. (15)
(b) For $P = 110011$ and $M = 11100011$ find CRC. (10)
- VII. (a) Which are the different multiplexing methods? Explain. (20)
(b) Ten 9600bps lines are to be multiplexed using TDM. Ignoring overhead bits what is the total capacity required for synchronous TDM? Assuming that we wish to limit average line utilization of 0.8 and assuming that each line is busy 50% of the time, what is the capacity required for statistical TDM? (5)
- OR**
- VIII. (a) What is concentration?
Give a comparative study on multiplexing and concentration. (10)
(b) What is SDLC? Explain. (10)
(c) Explain the use of HDLC in TDM. (5)

