7. (a) Draw the internal block diagram of 8251 and explain about each block in

detail.

(b) Distinguish between Synchronous and Asynchronous data formats. [10+6]

7. (a) Give the specifications of RS232C?

(b) Explain about line driver and line receiver used in serial communication?

(c) Give the status register of 8251 and explain each bit. [4+6+6]

7. (a) What are the important features of 8251?

(b) Explain the following control words of 8251. With suitable Examples.

i. Mode word ii Command word

(a) Discuss the types of serial communication?

(b) Write an 8086 instruction sequence for receiving 50 characters using 8251 and

store them in memory at location 2080H..

(b) Describe the Asynchronous transmission and reception schemes in detail. [8+8]

7. (a) Draw the block diagram of 8251 and explain each block.

(b) Draw the flowchart showing how synchronous serial data can be sent from a

port line using software routine.

(a) Explain the operation of 8251 in Asynchronous mode of communication.

(b) How TTL to RS-232C and RS-232C to TTL conversions are achieved? [8+8]

(a) Explain the line driver and the line receiver circuits of serial communication.

(b) What do you mean by I/O mapped I/O? Draw the interfacing of 8251 with

8086 in I/O mapped I/O mode. [8+8]

(a) Draw the circuit of TTL to RS232 and explain the necessity of this interface.

(b) Draw necessary circuit to interface 8251 to an 8086 based system with an

address 0A0H. Write the sequence of instructions to initialize 8251 for syn-

chronous transmission with odd parity, single SYNC character, 8-bit data

character? [8+8]

(a) What is the difference between 20mA current loop and RS232−C standard?

(b) Explain the necessity of RS232 to TTL interface and draw the circuit?

(c) Draw the circuit of TTL to RS232 and explain the necessity of this interface.

[5+5+6]

8. Interface 8251 with 8086 at address 40H. Initialize it in asynchronous transmit

mode, with 7 bit character size, baud rate factor 16, one start bit, one stop bit,

even parity enable. Further transmit a message “BEST OF LUCK” in ASCII from

to a modem? [16]

5. (a) A terminal is transmitting asynchronous serial data at 1200 bd. What is the

bit time? Assuming 8 data bits, a parity bit and 1 stop bit how long does it

take to transmit one character?

(b) Draw necessary circuit to interface 8251 to an 8086 based system with an

address 0C0H. Write the sequence of instructions to initialize 8251 for syn-

chronous transmission? (Assume the necessary data) [8+8]

(b) How do we connect RS-232C equipment

i. To data terminal type devices?

ii. To serial port of SDK ?86, RS-232C connection? [4+4]

(b) Discuss the mode instruction format of 8251 for synchronous and asynchronous

mode of operation?

8. (a) Describe the functions of the DSR, DTR, RTS, CTS, TXD, and RXD signals

exchanged between a terminal and a modern.

(b) Why is synchronous serial data communication much more efficient than asyn-

chronous communication?

8. Write a program to initialize 8251 in synchronous mode with even parity, single

SYNCH character, 7 bit data character. Then receive FFH bytes of data from a

remote terminal and store it in the memory at address 5000 H: 2000H. [16]

8. (a) Explain the Handshaking signal sequence for a system using modem.

(b) Write a short note on synchronous serial data communication. [8+8]