2019

MSc

4th Semester Examination

ELECTRONICS

PAPER – ELC-402

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer Q. No .1 and any ***THREE*** from the rest.

1. (a) Draw the block diagram of the built-in- clock of 8085 up.

(b) How does the microprocessor differentiate among a positive number, a negative number and a bit pattern ?

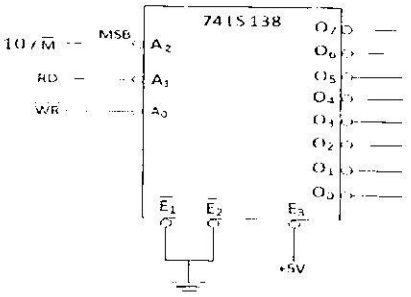
(c) Calculate analog voltages corresponding to the LSB and MSB for 12-bit A/D converter Calibrated for 0 to 5 V range.

(d) Show the serial bit format for ASCII character E (45H) at 9600 baud.

(e) What is microcontroller? 2x5

2. (a) Why do we need to de multiplex the bus $AD_7 - AD_0$? Explain with a schematic to de multiplex the bus.

(b)



The above figure shows 74 LS 138 (3-to-8) decoder with three input signals : IO/ $\overline{M}$, $\overline{RD}$ and $\overline{WR}$ from the 8085 up. Specify and name the valid output signals. (2+5)+3

3. (a) Write an ALP for 8085 μP for the following operations :

Six bytes of data are stored in memory locations starting at XX50H . Add all the data bytes. Use register B to save any carries generated, while adding the Data bytes. Store the sum at two consecutive memory locations XX70 H and XX71 H.

(b) Calculate the delay count that must be loaded the register C to obtain 1 ms delay between each count (use the clock frequency of the system = 2 MHz).

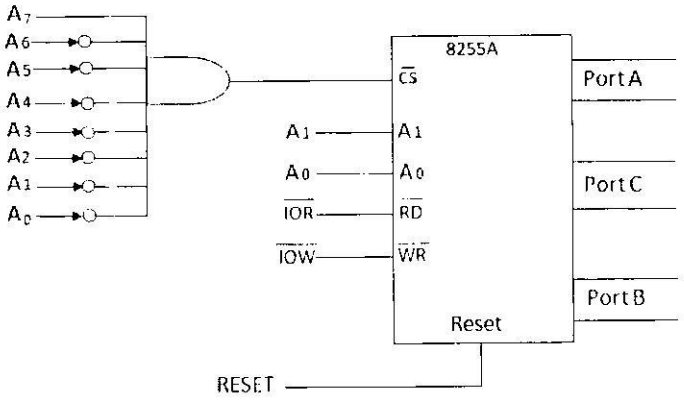
		8085
Label	Mnemonics	T- states
	MVIB,OOH	7
NEXT :	DCRB	4
	MVIC, COUNT	7
DELAY :	DCR C	4
	JNZ DELAY	10/7
	MOV A, 8	4
	OUT PORT #	10
	JMP NEXT	10

5+5

4. (a) Sketch the block diagram of PPI 8255A. Distinguish between the three modes of IC 8255 A.

(b) Write a BSR control word subroutine to set bits PC_7 and PC_3 and reset them after 10 ms . Use the figure shown below and consider a delay subroutine is available .

(4+2)+4



5. (a) Compare synchronous and asynchronous serial transmission. Explain the techniques used for error checks in date communication.

(b) Draw the RS 232 C equivalent circuit model and specify the various parameters of the Interface specifications. (2+3)+(2½+2½)

6. (a) Explain the physical address formation in 8086 μP. Why an 8-bit processor like 8088 is developed after 8086, when a 16-bit processor had already been introduced ?

(b) What are the features of Intel 8051 ? Draw the functional block diagram of 8051. (2+2)+(2+4)

(Internal Assessment – 10 Marks)