

[REVISED COURSE]

CON/2126-06.

TV-8112

(3 Hours)

[Total Marks : 100

- N.B. (1) Question No. 1 is compulsory.
 (2) Attempt any four out of remaining six questions.
 (3) Assume suitable data whenever required.
 (4) Figures to the right indicate marks.

1. Draw and explain the block diagram of typical microprocessor based temperature control system. (08)

B) Design the 8085 based interfacing circuit for microprocessor controlled temperature system. The system should contain 4Kx 8 program memory and 2Kx8 data memory. Use

- 74 LS 138: 3 to 8 decoder.
- 2732 (4Kx8) EPROM with starting address 0000H and addition 4K memory space should be available for future expansion.
- 6116 (2Kx8), CMOS R/W memory.
- Sufficient amount of input and output ports. (12)

2.A) Write a BSR controlled word subroutine to set bit PC7 and bit PC3 and reset them after 10ms. Use the port address and CWR address as 80,81,82,83 H. (10)

B) Explain mode 2 operation of 8255 PPI. Also draw the block diagram to set up the bi-directional communication between master and slave MPUs. (10)

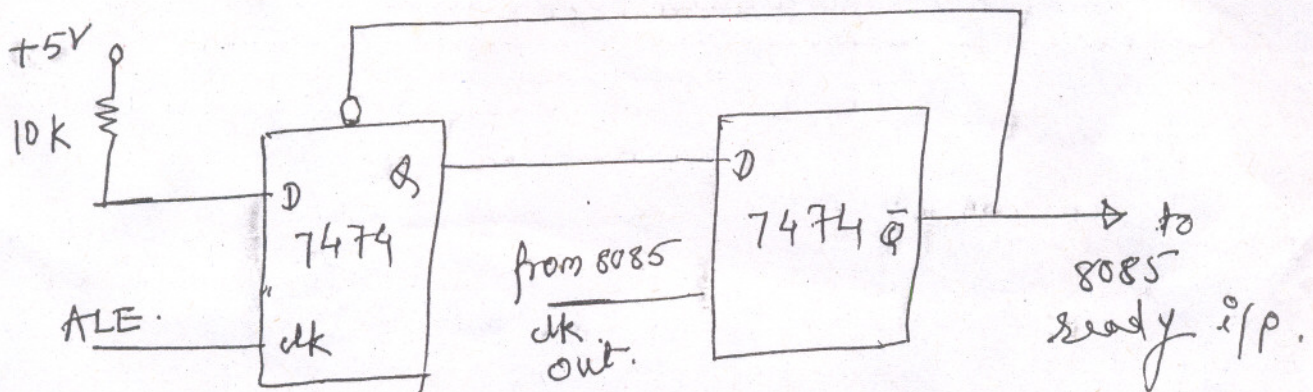
3.A) Estimate the output of the following program.

```
SDATA:  MVI C,0BH
        XRA A
NXTBIT: MVI A,80H
        RAR
        SIM
        CALL BIT_TIME
        STC
        MOV A,B
        RAR
        MOV B,A
        DCR C
        JNZ NXT_BIT
        RET
```

(08)

B) Explain different types of data transfers using DMA. Explain the interfacing of 8237A DMA controller with 8085 with neat circuit diagram.. (12)

4A) Explain the operation of the following circuit with the help of memory read machine cycle. (10)



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- B) Which are the different approaches for generating delays? Explain any one of them in detail. (10)
- 5A) What are the re_entrant and recursive subroutine? Explain various parameters passing techniques between main program and subroutines with example. (10)
- B) Explain 8085 based minimum system in detail. (10)
- 6A) With reference to PIC 8259A answer the following.
- What is the difference between EOIs and AEOIs? What could be the difficulty with AEOIs?
 - Explain fully nested mode and special fully nested mode.
 - Explain the meaning of call address interval of 4 bytes and 8 bytes. (12)
- B) Explain various modes of operation of 8254 timer. (08)
- 7A) Give the classification of instruction set in different groups with sufficient number of examples. (07)
- B) Write the program for finding the square of a single digit number. (07)

C) Read the following program and answer the questions.

2000	LXI SP,2100H	DELAY:	2064	PUSH H
2003	LXI B,0000H		2065	PUSH B
2006	PUSH B		2066	LXI B,80FFH
2007	POP PSW	LOOP:	2069	DCX B
2008	LXI H,200BH		206A	MOV A,B
200B	CALL 2064H		206B	ORA C
200E	OUT 01H		206C	JNZ LOOP
2010	HLT		206F	POP B
			2070	RET

- What is the status of the flags and the contents of the accumulator after the execution of the POP instruction located at 2007H?
- Specify the stack location and their contents after the execution of the CALL instruction (not the CALL subroutine).
- What are the contents of the stack pointer register and the program counter after the execution of the CALL instruction?
- Specify the memory location where the program returns after the subroutine.

(06)