

Dr B R Ambedkar National Institute of Technology, Jalandhar
B Tech (Electrical Engineering)
EEPC–301, Microprocessors and Interfacing
End Semester Examination, Dec 2020

Duration: 02 Hours

Max. Marks: 40

Date: 1st Dec 2020

(Marks Distribution & Mapping of Questions with Course Outcomes (COs))								
Question Number	1	2	3	4	5	6	7	8
Marks	5	5	5	5	5	5	5	5
CO No.	1	1	2	1	2	2	3	3
Learning Level	1	1	3	3	3	2	2	2

Note:

1. Attempt all the questions.
2. Write the answers in hard copy (on A4 sheet) using blue/black pen with your signature on top left and page number on top right corner of each page of the answer booklet.
3. The time allowed for writing examination is 02 hours. Extra 15 minutes are allowed for preparing the PDF file of Answer Booklet and submitting it.
4. Follow the instructions regarding submission of answer booklet as issued by the examination section.

Q 1. Draw the architecture and pin diagram of microprocessor 8085 and answer the following questions.

- (a) Name different registers in 8085 and explain their function.
- (b) What are flags in 8085 and how are they affected.
- (c) Compare the architecture of 8085 with 8086.

Q 2. Explain the machine cycles of the following instruction when it is executed, also draw its timing diagram.

Memory Address	Instruction	Opcode	Oprand
2010	STA	32H	2065

Q 3. By examining the range of the foldback memory in Figure 1, specify the relationship between the range of foldback memory and the number of don't care lines.

Q 4. Write the assembly language program to add an array of numbers stored in memory location and subsequently store the result in two consecutive memory locations.

Q 5. (a) Draw the architecture of interrupts in 8085. Discuss the bit pattern of the accumulator for SIM instruction.

- (b) In relation to Figure 2 what is the instruction placed on the data bus when input line I_6 of the encoder goes low, thus requesting the interrupt service?

Q 6. Draw the block diagram of 8255 and explain its control word. Port A of 8255 is set up in Mode 1, and the status word is read as 18H. Is there an error in the status word?

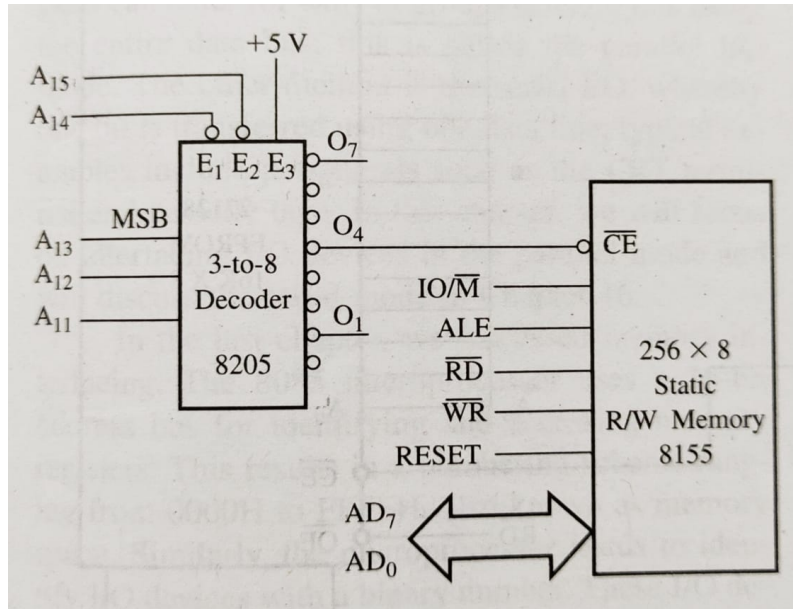


Figure 1:

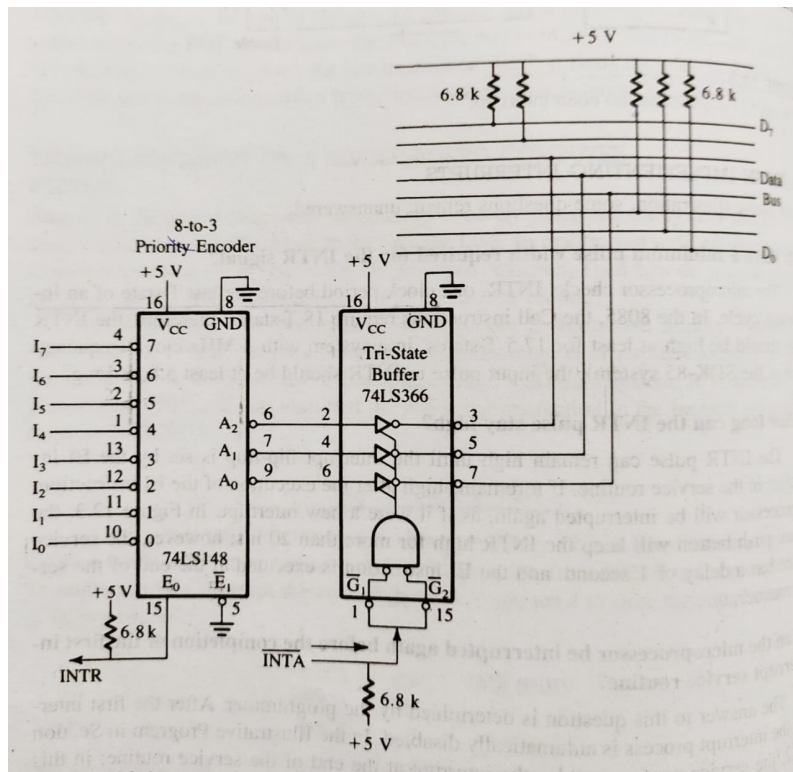


Figure 2:

- Q 7. Explain how the 8237 DMA controller transfers 64K byte of data per channel with eight address lines.
- Q 8. Set up the 8254 as a square-wave generator with a 1 ms period, if the input frequency to the 8254 is 1 MHz.
