

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Backlog), ~~NOVEMBER~~, 2017
B. Tech in ECE/EE/CSE , Semester - VI

Roll No.....

ECE622: MICROPROCESSOR & INTERFACING

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

- Q.1A Objective type multiple choice questions (10 questions @ 1 mark) 10
- i. In 8085 which of the following register take part in all arithmetic and logical operation?
(a) Accumulator (b) register B (c) register D (d) register C
 - ii. The instructions in 8085 that affects the flags are;
(a) arithmetic instructions only (b) logical instructions only
(c) both arithmetic and logical instructions (d) none of the above
 - iii. In 8085 microprocessor TRAP is a _____ type of interrupt.
(a) Maskable (b) Non- Maskable (c) positive (d) negative
 - iv. In a memory mapped I/O , the instruction used for read operation is
(a) IN 8-bit (b) IN 16-bit (c) LDA 16-bit (d) LDA 8-bit
 - v. In _____ mode of operation of 8255, all the ports are used as simple I/O ports
(a) BSR mode (b) Mode 0 (c) Mode 1 (c) Mode 2
 - vi. For masking RST 6.5 and RST 5.5 and enabling RST 7.5 interrupt, the 8-bit to be loaded in the accumulator is
(a) 0DH (b) 0BH (c) 0CH (d) 0AH
 - vii. An 8085 microprocessor requires ----- address lines.
(a) 16 (b) 14 (c) 10 (d) 20
 - viii. In 8051 micro-controller, the 8-bit data 35H is to be loaded to 'A' register. The correct instruction will be ----- ;
(a) MVI A,35H (b) MOV A,@35H (c) MVI A,#35 H (d) MOV A, #35 H
 - ix. The present content of the accumulator is 23H & the content of the CF is '0'. After the execution of 'RLC' instruction 3 times the content of the accumulator will be
(a) 8B (b) 19 (c) 17 (d) 46
 - x. The programmable interval timer (8254) can be used for _____ application;
(a) real time clock (b) event counter (c) square wave generator (d) all the above

Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
i.	Explain the difference between hardware & software interrupts with examples.	
ii.	Explain briefly the flag register of 8085 microprocessor.	
iii.	Briefly mention the addressing modes used in 8085 microprocessor with one example for each case.	
iv.	State the difference between microprocessor & microcomputer.	
Q.3A	Draw the timing diagram for the 8085 instruction MVI A, 07H. Explain briefly the diagram.	05
Q.3B	Write an assembly language program to add two 8-bit numbers .	05
Q.4A	Briefly explain the function of different registers used in 8085 microprocessor.	05
Q.4B	Outline the difference between memory mapped I/O & I/O mapped I/O schemes.	05
Q.5A	Assume that the 8085 returns to the main program after servicing RST 6.5. Write a program segment to check whether RST 5.5 interrupt is pending. If it is pending, then the program has to enable RST 5.5 without affecting any other interrupts. Otherwise, the program has to enable all interrupts and return to main program.	05
Q.5B	What is DMA? Briefly explain this category of data transfer.	05
Q.6A	State the purpose on interfacing IC 8255. Outline its basic features. Explain the different modes of operation	05
Q.6B	Write a BSR control word subroutine to set PC6, PC4 and PC2 and reset them after 5ms. Assume that a delay subroutine is available. Also assume the addresses appropriately.	05
OR		
Q.6B	What are the different methods used for obtaining software delay. Calculate the maximum possible delays for any one method.	05
Q.7A	How a microcontroller is different from a microprocessor. Compare them. Briefly explain the addressing modes used in 8051 microcontroller system giving at least one example for each case.	05
Q.7B	Write an 8051 microcontroller assembly language program to add two 8-bit numbers stored in the memory location 2500H & 2501H. Store the result in 2502H and 2503H. Assume that the main program is stored from 2300H onwards.	05
OR		
Q.7B	Briefly explain the instruction sets of 8085 microprocessor. Give at least one example for each case.	05
Q.8A	Design a memory interfacing problem to interface one 4Kb EPROM and two number of 16Kb RAM with 8085 processor. Briefly explain the interface diagram and mention the addresses allocated to each memory ICs. Use 74LS138 as decoder.	10

- Q.9A What do you mean by the interrupts in 8085 microprocessor? Explain in detail the different types of interrupts used in 8085 processor. Compare the interrupts with that of microcontroller systems. 10
- Q.9B Design an 8051 microcontroller based system where 8051 microcontroller is interfaced with one 32 KB program memory and an 8 KB data memory and also utilizing the internal 4 KB ROM. This microcontroller system also includes one 8255 programmable peripheral interface. Draw the interface diagram and also allocate the addresses for the memory and other peripherals. 10

OR

- Q.9B For the microprocessor based interfacing design problem (Shown in Figure-X), the input devices are the DIP switches and the LEDs are the output devices. These devices are connected to different ports of 8255 as shown in the Fig-X. Then 10
- (i) Identify the port addresses (ii) Identify the control word for appropriate mode of operation (iii) write a program to read the DIP switches display the readings through LEDs

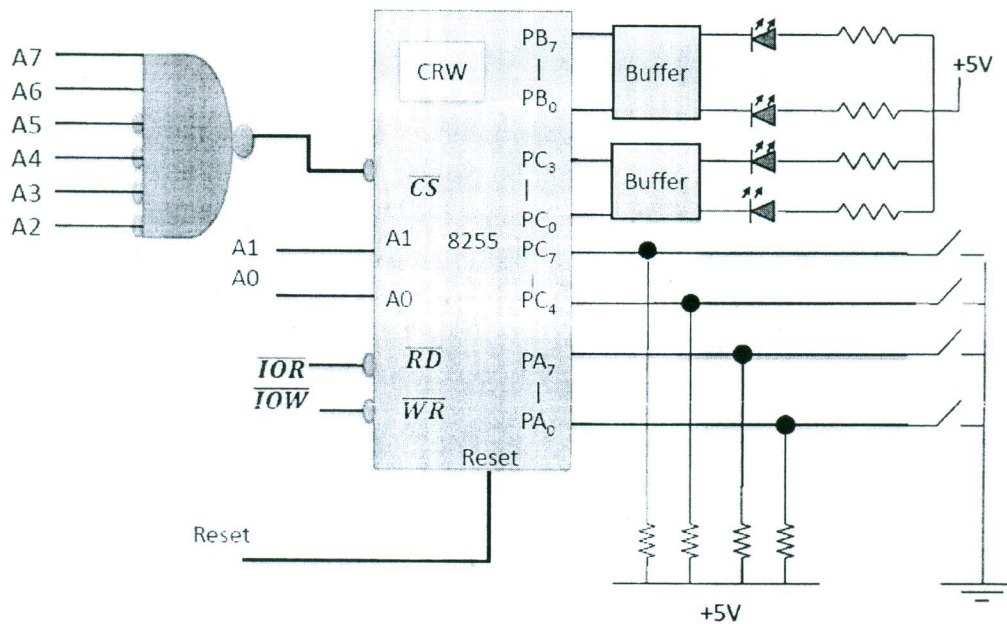


Figure-X (Q.9(B))