BACHELOR OF ELE ENGG 3ᴿᴰ YEAR 1ˢᵀ SEM SUPPLEMENTARY EXAMINATION, 2017(OLD)

MICROPROCESSORS AND MICROCONTROLLERS

Time: Three hours　　　　　　(50 marks for each Part)　　　　　　Full Marks: 100

Use a separate Answer-Script for each Part

PART- I

Answer *any three* questions.

Two marks are reserved for neatness and well organized answers.

1.a)	Mention the functions and the addressing modes of the following instructions of 8085microprocessor: 　　i.　LXI H, 8000H 　　ii.　ORA B 　　iii.　RLC 　　iv.　DCR C 　　v.　LDAX B 　　vi.　JMP 8050H	(6 x 2)
b)	Explain the function of the following pins of 8085 microprocessor (i)S_1, S_0 (ii) $\overline{\text{RESETIN}}$	(4)
2.	Write short notes on **any two** of the following: 　　i)　Pin diagram of 8085 microprocessor 　　ii)　8085 interrupts 　　iii)　Flag register of 8085 microprocessor	(8 x 2)
3.a)	Discuss in detail the operation when instruction RET is executed.	(6)
b)	What is T- state? What will be the value of one t-state if the clock frequency of the microprocessor is 3MHz.	(2)
c)	How many machine cycles and T-states are needed to execute LXI H, 2000H? Also draw the timing diagram considering the hex code for LXI H to be 21H.	(8)
4.a)	What are the various operating modes of 8251?	(6)
b)	Compare 8155 and 8255	(4)
c)	Explain and draw a neat timing waveform of 8155 I/O ports with handshake input mode.	(6)
5.	Write assembly language program in 8085 to perform the following operations: 　　(i)　To perform same as XCHG instruction. 　　(ii)　To see the content of flag register 　　(iii)　To obtain 100 µs delay time. 　　(iv)　To find the sum of first 50 natural numbers	(4+3+5+4)

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B. ELE. ENGG. 3RD YEAR 1ST SEMESTER (SUPPLEMENTARY) EXAMINATION, 2017(OLD)

MICROPROCESSORS AND MICROCONTROLLERS

Time: **Three hours**

Full Marks 100
(50 marks for each part)

Use a separate Answer-Script for each part

No. of Questions	PART II	Marks
	Answer any three *Two marks reserved for neatness.*	
1.	a) What are the different addressing modes available in an 8051 microcontroller? State them along with example for each type.	8
	b) Draw and explain the on-chip memory organization of 8051.	8
2.	Explain the operation of following instructions: i) JBC 07H, 08H ii) DA A iii) DJNZ 03H, 06H iv) DIV AB	4×4
3.	a) Write a program to generate a square wave of 2kHz frequency at pin P2.4 of 8051 on crystal frequency of 11.0592MHz.	8
	b) Write a program to implement the following function: $y(x) = 4x^2 + 5x + 10, \quad 0 \le x \le 5$ Input x is received from port-3 and the output y is delivered to port-1.	8
4.	Write short notes on any **two**: a) Flags of 8051. b) Interfacing of LED with 8051. c) Interrupt sequence in 8051.	2×8
5.	Write the bit formats of following SFRs and mention in short their functions: a) TMOD b) PSW c) IP d) SCON	4×4