Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B. Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2024

ELECTRICAL AND ELECTRONICS ENGINEERING
Semester 5
EE5502 MICROPROCESSORS AND MICROCONTROLLERS
(Regulation 2019)

Time: 3hrs | Max.Marks: 100

CO 1	To study the addressing modes and instruction set of 8085 and 8051
CO 2	To develop skills in simple program writing in assembly languages
CO 3	To introduce commonly used peripheral interfacing ICs
CO 4	To study and understand typical applications of microprocessors
CO 5	To study and understand typical applications of microprocessors

BL – Bloom's Taxonomy Levels
(L1 - Remembering, L2 - Understanding, L3 - Applying, L4 - Analysing, L5 - Evaluating, L6 - Creating)

PART- A (10 x 2 = 20 Marks)
(Answer all Questions)

Q. No	Questions	Marks	CO	BL
1	What is a Program Counter? What is the content of it while starting 8085 microprocessor?	2	1	L1
2	Differentiate machine cycle and instruction cycle.	2	1	L2
3	What is the status of the ZERO flag and the contents of the accumulator after the execution of the following 8085 assembly code? MVI A, 85H MVI B, 32H CMP B	2	2	L2
4	Discuss the significance of the HOLD and HLDA signals in the 8085 microprocessor.	2	2	L2
5	What is memory mapped connection? How to connect a switch using memory mapped connection to 8085 microprocessor?	2	3	L1
6	Can you read the value of a 10 digit ADC using 8-bit 8085 microprocessor? Justify your answer.	2	3	L1
7	Name the user programmable general purpose registers available in 8051 microcontroller?	2	4	L1
8	Define the term bit addressability with respect to 8051 microcontroller.	2	4	L2
9	Give the advantages of ARM architecture when compared to earlier architectures.	2	5	L1
10	What is JTAG? In what way does it help in programming embedded applications?	2	5	L2

PART- B (5 x 13 = 65 Marks)
(Restrict to a maximum of 2 subdivisions)

Q. No	Questions	Marks	CO	BL
11 (a)	Draw and explain the timing diagram of the instruction LDA 9000H. Opcode of LDA is 3A. Assume that the data at 9000H is 12.	13	1	L3

	OR			
11 (b)	Explain the 8085-processor architecture with necessary diagram	13	1	L3
12 (a)	Explain any 10 data transfer instructions in 8085 with examples for each.	13	2	L4
	OR			
12 (b) (i)	Explain the modes of operation in 8085 microprocessor.	6	2	L4
(ii)	Write an assembly language program to arrange the given five numbers in ascending order for 8085 microprocessor with comments for each line of code. Replace all opcodes as XX while writing the program.	7	2	L4
13 (a)	Explain the block diagram, modes of operation and control words for 8259 PIC	13	3	L3
	OR			
13 (b)	Explain the block diagram, modes of operation and control words for 8254 Timer	13	3	L3
14 (a)	Explain the timers available in 8051-microcontroller and their different modes of operations.	13	4	L4
	OR			
14 (b)	Explain the 8051-microcontroller architecture and explain the block diagram.	13	4	L4
15 (a) (i)	Write short notes about cache and TCM.	6	5	L3
(ii)	Write short notes on naming conventions and nomenclature rules of ARM processors	7	5	L3
	OR			
15 (b) (i)	Explain the ARM cortex programmer's model a neat diagram.	13	5	L3

PART- C (1 x 15 = 15 Marks)

(Q.No.16 is compulsory)

Q. No	Questions	Marks	CO	BL
16.	Connect eight switches to the port A of 8255 PPI and 8 LEDs at port B. Connect 8255 PPI to connect with 8085 microprocessor with the help of NAND gates to connect in the address from 40H to 43 H. write a program to read the switches and switch on the LEDs as per the corresponding input switches.	15	3	L6