BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BTECH **SEMESTER : V/ADD**
BRANCH: ECE **SESSION : MO/2025**

SUBJECT: EC303 MICROPROCESSORS AND MICROCONTROLLERS

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	i. Differentiate between macroinstructions and microinstructions with suitable examples. ii. Explain the various steps taken by SAP-I system for Fetching an instruction.	[2]	1	2
Q.1(b)	What is NOP T state in the execution cycle? Explain how it is used to make a variable machine cycle by giving suitable diagram.	[3]	1	2
Q.2(a)	Explain the functions of the following pins of 8085 CPU i. READY ii. S0 and S1 iii. ALE iv. INTR	[2]	1	2
Q.2(b)	A group of 100 bytes residing in memory locations starting from 5050H. Write a program to select the bytes less than 3E H and store them at location starting from memory location 6000H. Also store the count of bytes which are less than 3EH in BCD at memory location 5FFFH.	[3]	2	4
Q.3(a)	Compare the following with suitable example. i. HL and BC register pairs ii. INX B and INR B instructions	[2]	2	2
Q.3(b)	An 8085 based system has 8K ROM and 8K RAM. Sketch the relevant diagram and show the memory map for expanding the RAM of the system by 4K.	[3]	3	4
Q.4(a)	Explain the various addressing modes available with 8085 CPU by giving suitable examples of instructions.	[2]	2	2
Q.4(b)	Consider 256 bytes of data are arriving at SID pin of 8085 LSB first and MSB last. The delay between the arrival of two consecutive bits is 2 seconds. Write 8085 based program to input these bytes and store them in memory locations starting from 2500H. Consider delay subroutine is available at memory location 5902H.	[3]	5	4
Q.5(a)	Explain the use of RIM and SIM instructions of 8085 by giving suitable examples.	[2]	2	4
Q.5(b)	Write an 8085 based program to blink a LED connected to the SOD pin of 8085 continuously. If CPU is interrupted using RST 5.5 then decrement the data stored at 2400H by one. Disable the RST 5.5 interrupt if the content of 2400H becomes 00H.	[3]	5	4

:::::18/09/2025 :::::M