

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI**  
**(MID SEMESTER EXAMINATION MO/2023)**

**CLASS: BTECH**  
**BRANCH: ECE**

**SEMESTER: V**  
**SESSION: MO/2023**

**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
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		CO	BL
Q.1(a)	What do you mean by a machine cycle of a computing machine? Explain how machine cycle is made variable if 3E3H is generated by the controller sequencer of SAP-I system.	[2] 1	3
Q.1(b)	Illustrate microinstructions and macroinstructions? Explain and compare the two techniques used for generating microinstructions in SAP-I system.	[3] 1	2, 3
Q.2(a)	Explain Fetch Execution Overlap in 8085 with some suitable instruction for the same.	[2] 1	2
Q.2(b)	8 BCD digits are residing in memory location starting from 2400H in unpacked form. Write an 8085 based program to form a lowest possible number using digits given and store it in memory location starting from 2500H in packed form.	[3] 2	6
Q.3(a)	A block of bytes starts with the content of 2400H and ends with the content of 2401H is residing in location starting from 2500H. Write an 8085 based program to find the size of the data block in BCD. [ Max data block size-99].	[2] 2	6
Q.3(b)	Schematize how will you expand the RAM by 8KB in an 8085 based system with 16 KB ROM and 4KB RAM?	[3] 2	6
Q.4(a)	List the various status signals available in 8085? Explain their functions?	[2] 1	1,2
Q.4(b)	100 bytes are residing in memory location starting from 2400H. Write 8085 based program to output them serially at SOD pin LSB first MSB last at regular interval of 20msec.	[3] 2	6
Q.5(a)	Illustrate the purpose of having interrupt acknowledge pin in 8085. How an interrupt arriving at INTR pin of 8085 is disabled by the programmer?	[2] 2	1,2
Q.5(b)	An 8085 based system is interrupted via RST5.5 and RST6.5 pins for a person entry (going IN) or exit (going OUT) in a hall. Write an 8085 based program to count the number of persons present inside the hall in BCD and display the count continuously by storing it at memory location 2400H. Disable all interrupts if the count reaches to 99 and flicker a RED LED connected to SOD pin every second. Assume 1 second delay subroutine is available at ONE_SEC_DELAY	[3] 2	6

:::20/09/2023 M:::