BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION MO/SP20)**

CLASS: BTech **SEMESTER : V**
BRANCH: EEE **SESSION : MO/2022**

SUBJECT: EE303 INTRO. TO MICROPROCESSOR AND MICROCONTROLLERS
TIME: 03 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 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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Q.1(a)	Compare 8085 with 8086 on the basis of their flags.	[2]	1	1
Q.1(b)	Explain the architecture of 8086 microprocessor.	[3]	1	2
Q.1(c)	Write an ALP for finding average of 20 decimal numbers stored from starting location 2400H and store results at 2500H. Use 8085 as microprocessor. Results only integer part.	[5]	2	4
Q.2(a)	Explain the memory segmentation of 8086. Also give steps for calculating the physical address.	[2]	3	9
Q.2(b)	Write an ALP using 8086 to find the size of a given string at NUM and arrange them in ascending order at ASC. Store the length of string at label SIZE.	[3]	2	6
Q.2(c)	Explain the following: (a) Addressing modes (b) Instruction types (c) Types of machine cycle and any one machine cycle timing diagram.	**[5]**	**2**	**5**
Q.3(a)	Explain the following instructions: TEST, NEG, SHR, LOCK	[2]	3	9
Q.3(b)	Explain 8255 with its functional block diagram.	[3]	5	2
Q.3(c)	Draw an interfacing diagram of 8255 with 8086 and ADC, write a program to one minute data from a signal of 5KHz arriving at ADC channel-0. Assume suitable port addresses and a single ADC. Store converted data starting from offset 1050H.	[5]	5	6
Q.4(a)	Draw and explain the block diagram of 8259 chip.	[2]	5	2
Q.4(b)	Differentiate between microprocessor and microcontroller. Explain the architecture which is followed for designing a microcontroller.	[3]	4	8
Q.4(c)	Draw and explain the pins and architecture of 8501 microcontroller.	[5]	4	2
Q.5(a)	What are the addressing modes available with 8051 microcontrollers? Explain with suitable instructions.	[2]	2	4
Q.5(b)	Write a program to input eight 8-bit data from port-0 and check for parity by indicating 1 (parity even) else 0 (parity odd) on port-1.0 to 1.7 (for every byte inputted)	[3]	3,4	7
Q.5(c)	Draw a 16KWord memory interfacing diagram with 8086 and its mapping starting from 20000H. Use 2KB RAM chips and decoder for the same.	[5]	3,5	8

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