Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B. Tech. (BME) DEGREE END SEM EXAMINATIONS NOV/ DEC 2016

SUBJECT: MICROPROCESSORS (BME 307)

(REVISED CREDIT SYSTEM)

Thursday, 1st December 2016, 2 PM to 5 PM

TIME: 3 HOURS **MAX. MARKS: 100**

Instructions to Candidates:

1. **Answer any FIVE full questions.**
2. **Draw labeled diagram wherever necessary.**

1. (a) Draw the logic diagram, truth table, and write significance of the following interfacing devices: **3+3**

(i) 74LS245

(ii) 74LS138

(b) Draw the Programmer's models of the Intel 8086 and Motorola 68000 microprocessors, and compare them. **4+4**

(c) Make a list and write significance of Maximum mode signals of the 8086 microprocessor. **6**

2. (a) How does the 8086 microprocessor access odd and even bytes and words from the memory? Illustrate with an example to each. **12**

(b) How does the 8086 computes the physical address of a memory location? Illustrate with an example. **4**

(c) Name the memory segments available in the 8086 microprocessor, and write the significance of each of them. **4**

3. (a) List and explain with illustrations, I/O port addressing modes of the 8086 microprocessor. **6**

(b) Write an assembly language program to read a character string (in English) in lower case, from the standard input device, convert the read string into upper case and display it on the standard output device. Let the maximum length of the string be 12 characters. **8**

	(c)	Write an instruction of the 8086 microprocessor, which is suitable for accessing a look-up table. Give an illustration.	**6**
4.	**(a)**	List and explain the function code and data strobe signals of the 68000 microprocessor.	**6**
	(b)	What are the provisions available in the 68000 microprocessor to interface the 6800 peripherals?	**6**
	(c)	How do you activate the auto-vector mechanism of the 68000 microprocessor? Explain with the help of a hardware circuit.	**8**
5.	**(a)**	Draw the logic diagrams and explain the **RESET**, **CLOCK**, and **READY** logics of the 8284 clock generator.	**10**
	(b)	How do you generate a long time delay using the interrupt of the 8086 microprocessor? Explain.	**6**
	(c)	How does the direction flag help in handling the string? Illustrate with examples.	**4**
6	**(a)**	Design an 8086 based system to generate a periodic triangular waveform of frequency 2 KHz.	**8**
	(b)	Write a memory efficient 8086 assembly language program to search and count number of occurrences of a byte “00 h” in a memory array of 50 bytes.	**8**
	(c)	Write the inputs required and outputs of the following DOS (INT 21H) functions 01H and 02H.	**2+2**