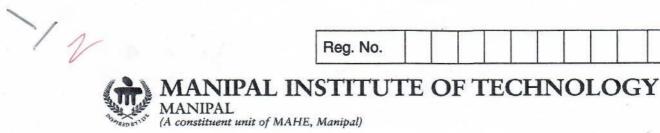
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IV SEMESTER B.TECH. (INFORMATION TECHNOLOGY) **MAKEUP EXAMINATIONS, JUNE 2019**

COMPUTER ORGANISATION AND MICROPROCESSOR SYSTEMS [ICT 2202] REVISED CREDIT SYSTEM (11/06/2019)

MAX. MARKS: 50 Time: 3 Hours Instructions to Candidates: Answer ALL the questions. Missing data, if any, may be suitably assumed. Given $M = 16_{(10)}$ and $Q = -12_{(10)}$, perform multiplication using Booth's Algorithm 5 indicating all the steps. If AX = F123H, BX = -81H, what is the content of AX register after the execution of the following instructions: 3 ii. IDIV BL 86E3 **IMUL BX** Explain the function of the following pins of 8086: 2 i. ALE ii. READY Explain indirect memory addressing modes of 8086 with an example for each. 5 2B. Design the processing section of 4x4 Booth's multiplier. 3 2C. Write an 8086 procedure to interface DC motor to 8086 through 8254. 2 What is the need of cache memory in computer system? Discuss the following cache mapping techniques: fully associative mapping, direct mapping and set associative 5 mapping. Write an assembly language program to search for an element 'n' in an array of ten 2 - digit hexadecimal numbers located in the data segment and display the message 3 accordingly. The element 'n' is a 2 - digit hexadecimal number accepted from the keyboard. 3C. Explain the following assembler directives i. ASSUME ii. **ENDS** iii. OFFSET iv. DT 2 Explain the internal architecture of 8259 IC with the help of a neat diagram. Explain how 8259 ICs can be cascaded. 5 With a neat diagram, explain mode 1 and mode 2 operations of 8255. 3

| 4C. | Draw the circuit diagram of a 4 – bit combinational shifter that is capable of rotating bits by one, two or three positions to the left. | 2 | | |
|-----|--|---|--|--|
| 5A. | What are the steps involved while servicing an interrupt? With neat diagrams, explain polled and daisy chain techniques for servicing multiple interrupts. | 5 | | |
| 5B. | Explain the concept of memory segmentation in 8086 and its advantages. | | | |
| 5C. | Explain the importance of various control flags available in the flag register of 8086 | 2 | | |

ICT 2202