TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2078 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEI	Pass Marks	32
Year / Part	I / II	Time	3 hrs.

Subject: - Microprocessor *(EX 452)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Explain briefly the microprocessor-based system with diagram. Differentiate between hardwired and microprogrammed control unit. [4+4]
2. Draw and explain in detail about internal architecture of 8085 microprocessor. [8]
3. Assume there are thirty 8-bit numbers stored in a memory location starting from 2050H. Write a program to store them to location starting from 3050H by setting D_5 and resetting D_2, if numbers have an even number of 1's else store the count of number of 1's. [8]
4. Explain the use of segment registers in 8086 microprocessor. Differentiate rotate and shift instructions in 8086 microprocessor. [4+4]
5. Write a program in 8086 to input a string and display each word in a separate line in a clear screen, also display the number of words. [8]
6. What do you mean by synchronous bus? Draw the timing diagram for an instruction OUT D5H. [3+5]
7. What is non-unique address decoding? Explain with suitable examples. Design an address decoding circuit to interface three LED output devices at addresses 8085H, 8086H and 8087H. [3+5]
8. Explain the general-purpose interrupt (INTR and INTA) processing sequence in 8085. [8]
9. Define instruction level parallelism and thread level parallelism. What are the features of typical operating system? [4+4]
10. Write short notes on: (Any Two) [2×4]
    a) 8255 PPI
    b) USART
    c) PIC

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1. Differentiate between Microprocessors and Microcontrollers. Explain how the microprocessor is organized in microprocessor based systems. [4+4]
2. Draw the internal architecture of 8085 microprocessor and explain in brief. [8]
3. Write a program in 8085 to transfer 8 bit number from one table to other by setting bit D5 if the number is less than 80H else transfer the number by resetting bit D6. [8]
4. Draw the internal architecture of 8086 microprocessor and explain its each block in detail. [8]
5. Write an assembly language program to input a string from keyboard and count the number of words in that string. If the number of words is odd then display "ODD NUMBER OF WORDS" otherwise display "EVEN NUMBER OF WORDS" in a clear screen. [8]
6. Let at the program memory location C020H, the instruction OUT 41H is stored while the accumulator content is 0FH. Illustrate the execution of this instruction by timing diagram with detailed explanation. [8]
7. What is the concept over memory mapped I/O and I/O mapped I/O? Design an address decoding circuit to interface two R/W memory chips each of 4KB at the address A000H. [2+6]
8. What is interrupt? Explain in detail about polled and vectored interrupt. [2+6]
9. Differentiate between RISC versus CISC processors. Explain Flynn's classification. [4+4]
10. Write short notes on: (Any two) [2×4]
    a) RS232
    b) Flags of 8086 microprocessor
    c) Operation of PUSH and POP instructions in 8085 microprocessor

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