Tribhuwan University
Institute of Science and Technology
2078

Bachelor Level / second-semester / Science Full marks: 60 **Computer Science and Information Technology(CSC162)** Pass marks: 24 (Microprocessor) Time: 3 hours Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

Group A

Long answer questions:

Attempt any Two questions: [2 x 10 = 20]

1. Explain instruction cycle, machine cycle and T-states. Draw timing diagram of IN instruction with brief description. [3+5+2]

2. Draw a block diagram of the 80286 microprocessor and explain its main four functional sub-units. Differentiate between Real Address Mode and Protected Virtual Address Mode. [4+4+2]

3. Explain LXI and CMP instruction. Write an assembly language program for an 8 bit microprocessor to divide 8 bit data stored in memory location 8050 by 8 bit data stored in 8051 and store the quotient in 8052 and remainder in 8053. [3+7]

Group B

Short answer questions:

Attempt any Eight questions: [8 x 5 = 40]

4. What are different modes of parallel communication? Construct a control word for 8255 PPI for following configuration:

Port A and Port C_{upper} - mode 0

Port B and Port C_{lower} - mode 0

Port A and Port C_{upper} as input port

Port B and Port C_{lower} as output port

5. Differentiate between interrupt based I/O and DMA based I/O. Explain basic DMA operation in brief. [2+3] 6.

Differentiate between PUSH and POP instruction with examples illustrating the use of these instructions. 7.

Write an assembly language program for a 16 bit microprocessor to reverse the string "This is Microprocessor".

8. What is the use of AD_7-AD_0 in an 8085 microprocessor? Explain address de-multiplexing process in 8085 microprocessor with suitable diagram. [1+4]

9. What is meant by addressing mode? Explain all the addressing modes available in 8085

microprocessors. 10. Explain Register Organization in 80386 microprocessor.

11. Draw a logic diagram showing generation of memory and I/O read/write control signals in an 8085

microprocessor. 12. Write short notes on (ant two): [2 x 2.5]

a) Program Counter

b) Von-Neumann Architecture

c) Interrupt Masking