Tribhuvan University

Institute of Science and Technology

2078

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Bachelor Level/First Year/Second Semester/Science — Full Marks: 60

Bachelors in Information Technology (BIT 151) — Pass Marks: 24

(Microprocessor and Computer Architecture) — Time: 3 Hours

Candidates are required to give their answers in their own words as for as practicable.

The figures in the margin indicate full marks.

Section A

Long Answer Questions

Attempt any TWO questions. **[2x10=20]**

1. What is 8085 microprocessor? Explain the functional units of 8085 microprocessor in brief. [2 +8]
2. Draw the block diagram of Hardwired control unit and explain their functional units in brief. [10]
3. State an algorithm for the restoring division method of fixed point binary division. Show the step-by step division process using restoring division algorithm when 448(01110 00000) is divided by 17(10001). Use 5-bit register to represent the numbers. [5+5]

Section B

Short Answer Questions

Attempt any EIGHT questions. **[8x5=40]**

4. What is the difference between SAP-1 and SAP-2? [5]
5. What is instruction cycle? If the clock frequency is 5 MHz, how much time is required to execute an instruction MVI A, 08H? [3+2]
6. What is Microoperations? Explain the function of each following microoperations

   AR ← PC

   DR ← M[AR], PC ← PC+1

   AR ← DR(0 - 10), CAR(2 - 5) ← DR(11 - 14) [1+4]

7. What is Instruction Format of basic computer architecture? A computer uses a memory unit with 256K words of 32 bits each. Draw the instruction word format and indicate the number of bits in each part. [2+3]
8. Write a 8085 assembly langauge for division of two 8-bit numbers by repeated subtraction method. [2+3]
9. Explain the use of mapping table. [5]
10. What is the difference between isolated 1/0 and memory-mapped I/0? What are the avantages and disadvantages of each? [4+1]
11. What is pipelining? Explain the role of pipelining in computing. [3+2]
12. Write short notes on: [2x2.5=5]
    a. Multiplexed Address
    b. Memory Hierarchy