

**TRIBHUVAN UNIVERSITY**  
**Institute of Science and Technology**  
**2071**

Bachelor Level/ First Year/ Third Semester/ Science  
**Computer Science and Information Technology (CSc. 201)**  
(Computer Architecture)

Full Marks: 80  
Pass Marks: 32  
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.*

**Long Questions:**

**Attempt any two questions:** (2x10=20)

1. Write down the code to evaluate  $Y = A/B + CD + E (F/G)$  in three address, two address, one address and zero address instruction format.
2. Explain the mapping function. Why replacement algorithm is used in set associative mapping? Explain with example.
3. Differentiate between interrupt driven I/O with programmed I/O. Explain with example how data transfer is performed in direct memory access (DMA).

**Short Questions:**

**Attempt any ten questions:** (10x6=60)

4. Explain the floating point addition and subtraction with flowchart.
5. Comparison between RISC and CISC.
6. What are the key characteristics of computer memory system? Explain.
7. Explain input/output interface with example.
8. Compare the different types of addressing modes with example.
9. Explain the microprogram control unit with example.
10. Explain the non-restoring division algorithm with example.
11. Explain the input-output processor with block diagram.
12. Explain the data manipulation instruction with example.
13. Explain with example of Arithmetic microoperations.
14. Explain memory management hardware with example.
15. Write short notes on the following:
  - a) Virtual memory
  - b) Register organization.