

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2076 Ashwin

| Exam. | Back | | |
|-------------|----------|------------|--------|
| Level | BE | Full Marks | 80 |
| Programme | BEX, BCT | Pass Marks | 32 |
| Year / Part | III / I | Time | 3 hrs. |

Subject: - Computer Organization and Architecture (CT 603)

- ✓ 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. What is PCI? Explain the design goals and performance metrics for a computer system regarding its organization and architecture. [1+5]
2. Write the arithmetic statement $Y=(W+X)*(Y-Z)$ using Zero, One, Two and Three address instruction format. [8]
3. Explain the different types of addressing modes and compare each of them. [8]
4. Explain block diagram of micro-programmed control organization. Describe various fields in micro-instruction format with diagram showing different fields. [4+6]
5. Describe the hazard in a pipeline. Explain the different types of hazards. How can these be overcome? [2+4+2]
6. Write an algorithm of booth multiplication. Perform 8×4 using booth multiplication algorithm. [10]
7. Differentiate between restoring division and non-restoring division and non-restoring division algorithm. [6]
8. Describe cache operation in briefly. Explain about associative mapping technique. Give reasons why replacement algorithm is not required in direct mapping technique. [2+6+2]
9. Explain the DMA operation with block diagram. How does DMA have request over the CPU when both request a memory transfer? [8+2]
10. Discuss about tightly-coupled multiprocessor with block diagram. [4]
