

TRIBHUVAN UNIVERSITY  
INSTITUTE OF ENGINEERING  
**Examination Control Division**  
2080 Baishakh

Exam.	Back		
Level	BE	Full Marks	80
Programme	BEX, BEI, 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. Define structure and function of a computer system. Draw instruction cycle state diagram with interrupt. [4+2]
2. Write down the code to evaluate  $X = \frac{A - B + C \times (D \times E - F)}{G + H \times k}$  in three address, two address, one address and zero address instruction formats. [8]
3. What are the different types of addressing modes? Compare them with advantages and disadvantages. [2+6]
4. Differentiate between hardwired and micro programmed control unit. Explain with block diagram of micro programmed control unit. [5+5]
5. How can we prove that pipelining improves the performance of a computer? Explain the operation of instruction pipeline for processing four segment instruction cycle with the help of space-time diagram. [4+6]
6. Explain non-restoring division algorithm with flow chart and also divide 12/5 using same algorithm. [5+5]
7. Multiply -6×7 using Booths multiplication algorithm. [6]
8. What is set associative mapping? Explain how it combines the feature of direct and associated mapping technique. Explain different replacement algorithm techniques used in cache memory. [2+3+3]
9. Explain CPU-IOP Communication with diagram. Explain DMA controller with suitable block diagram. [5+5]
10. Explain the crossbar switch interconnection structure with block diagram. [4]

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