

TRIBHUVAN UNIVERSITY  
INSTITUTE OF ENGINEERING  
**Examination Control Division**  
2079 Bhadra

Exam.	Regular		
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. Explain about the structural and functional viewpoint of a computer. Explain different elements of bus design. [4+2]
2. Write a code for  $X = ((A+B)/C) + (D - E)$  using three addresses, two addresses, one address and zero address instruction format. [8]
3. List out the different types of addressing modes and explain each of them with suitable example. [8]
4. Describe the operation of hardwired control unit with a typical block diagram. Explain the operation of microprogram sequencer used in microprogrammed control unit. [5+5]
5. Explain arithmetic pipelining with example. Describe different types of pipeline hazards with example. [4+6]
6. Draw the flowchart for Non-Restoring Division. Perform  $13/5$  using restoring division. [4+6]
7. Explain floating point addition and subtraction algorithm with an example. [6]
8. Describe how Set-Associative Mapping works in Cache memory mapping. Explain different write policy techniques in cache memory. [3+5]
9. Elaborate the roles of I/O interface in a computer system. Explain how data transfer is performed with programmed I/O technique with necessary diagram. [10]
10. Compare and contrast the interconnection structures used in multiprocessing environment. [4]

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