

Tribhuvan University
Institute of Science and Technology
2070

Bachelor Level / first-semester / Science Full marks: 60 **Computer Science and Information Technology(CSC111)** Pass marks: 24
(Digital Logic) 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: (2 × 10=20)

1. Design Magnitude comparator and also design a logic diagram for a 4 bit magnitude comparator.
2. What do you mean by ripple counters? Explain with timing diagram.
3. Explain the full subtractor with using decoder.

Short Questions:

Attempt any eight questions: (8 × 5=40)

4. Design a half adder logic using only NAND gates.
5. Convert the following decimal number into hexadecimal and octal.
 - a. 334
 - b. 225
6. Explain the K-map with three variables.
7. Explain the combination logic with examples.
8. Differentiate between Multiplexer and demultiplexer.
9. Mention the difference types of shift register.
10. What do you mean by Ripple counters?
11. Explain the decoder and design with universal gates.
12. What do you mean by clocked RS flip-flop ?Explain
13. Write short note on (any two):
 - a) Flip flop
 - b) Synchronous Counter
 - c) Digital systems.

