Tribhuvan University
Institute of Science and Technology
2065
✡

Bachelor Level/ First Year/ Second Semester/ Science — Full Marks: 60
Computer Science and Information Technology (CSc. 151) — Pass Marks: 24
(Digital Logic) — Time: 3 hours.

Candidates are required to give their answers in their own words as for as practicable.
The figures in the margin indicate full marks.

Long Answer Questions:
Attempt any TWO questions: **(10x2=20)**

1. Draw a block diagram, truth table and logic circuit of a 16 x 1 multiplexer and explain its working principle.
2. Explain the 4 bit ripple counter and also draw a timing diagram.
3. Design the full subtractor circuit with using Decoder and explain the working principle.

Short Answer Questions:
Attempt any EIGHT questions: **(8x5=40)**

4. Design a half adder logic using only NOR gate.
5. Convert the following decimal numbers into hexadecimal and octal number.
   a) 304 b) 224
6. Describe the three Variable K-map with example.
7. Design the Decoder using Universal gates.
8. What is combinational logic? What are its important features.
9. Describe the clocked RS flip-flop.
10. What do you mean by triggering of flip flop?
11. What are the shift Register operations?
12. Describe the Ripple counter.
13. Write short notes on:
    a) Registers.
    b) Digital.
    c) EBCDIC.