

Tribhuvan University
Institute of Science and Technology
2065

Bachelor Level/ First Year/ Second Semester/ Science

Computer Science and Information Technology (Csc. 151)

(Digital Logic)

Full Marks: 60

Pass Marks: 24

Time: 3 hours.

Candidates are required to give answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Long Answer Questions:

Attempt any two questions.

(2x10=20)

1. Draw a block diagram, truth table and logical 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 circuit 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.