Tribhuvan University

Institute of science and Technology

2073

Bachelor Level/First Year/Second Semester/Science   Full Marks: 60

Computer science and information Technology (CSc.151)   Pass Mark: 32

(Digital Logic)   Time: 3 hours

Candidates are required to give their answer in their own word as far as practicable.

The figures in the margin indicate full marks.

Long Answer Questions:

Attempt any two questions: (10x2=20)

1. Explain the magnitude comparator and also design a logic diagram for 4 bit magnitude comparator.
2. What do you mean by decoder? Design a 3 to 8 line decoder using two 2 to 4 line decoder and explain it.
3. What do you mean by ripple counter? Explain the design procedure of sequential circuits.

Short Answer Questions:

Attempt any eight questions.   (8x5=40)

4. Convert the following hexadecimal number to decimal and octal numbers.
   a) 4FFF   b) 6FED
5. Explain the error code detection code with example.
6. Explain the duality theorem with example.
7. Design a halt adder logic circuit using only universal gates.
8. Draw a logic circuit of 8 x 1 multiplexer.
9. Design the 4 bit parallel Binary adder.
10. Explain the PCA with block diagram.

11. Explain the R-S flip – flop with truth table.
12. Explain the shift register with example.
13. Write short notes on (**any two**):
   a) Binary counter
   b) State Reduction
   c) Negative edge triggering