Tribhuwan University

Institute of Science and Technology

Digital Logic

2068

Full Marks : 60

Pass Marks : 24

Time : 3 hrs.

Long answer questions :

Attempt any two questions : **(2*10=20)**

1.) Draw a block diagram truth table and logic circuit of 1*16 Demultiplexer and explain its working principle.
2.) Design a 3 bit synchronous counter and explain it.
3.) What is magnitude comparator? Design a logic circuit for 4 bit comparator and explain it.

Short answer questions :

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

4.) Design a half subtractor circuit using only NAND gates.
5.) Convert the following decimal numbers into Hexadecimal and Octal numbers:
    a.) 504
    b.) 250
6.) Design an encoder using universal gates.
7.) What do you mean by D-flip-flop?
8.) What is sequential logic? What are the important features?
9.) Simplify the Boolean function using K-Maps.
    F = X'yz + X'yz' +Xy'z' +Xy'z
10.) Draw a parallel-parallel-out shift register and explain it.
11.) Explain the 4 bit ripple counter.
12.) Explain the programmable logic array.
13.) Write short notes on :
    a.) Asynchronous counter
    b.) Multiplexers
    c.) State reduction table