

Course Code: EE-1005	Course Name: Digital Logic Design
Instructor Name: Sumaiyah Zahid	
Student Roll No:	Section:

Instructions:

- In case of any plague you will be given straight 0.

Total Marks: 100

Circuit Designing

Marks: 100

1. Design the logic diagram of a 4-bit parallel adder-subtractor circuit. There should be 1 control key, if key=0 it should add or if key=1 it should subtract.
2. Design the logic diagram using two 4 bit adders to create 8 bit subtractor.
3. Design the logic diagram to multiply 1101 with 101.
4. Design the logic diagram to compare the magnitude of two 3-bit binary number using only basic gates.
5. Design the logic diagram using two 4 bit comparators (block diagram) to create 8-bit comparator.
6. Design the logic diagram using two 2-to-4 decoder to create one 3-to-8 decoder,
7. Implement a full adder circuit by using 3-to-8 line Decoder.
8. Implement a full adder circuit by using 4 X 1 Multiplexers.
9. Construct a 16 X 1 multiplexer with four 1x4 Multiplexers.
10. Implement the following Boolean function using decoder.
 - $F(A, B, C, D) = \Sigma (1, 2, 3, 7, 9, 13, 15)$