



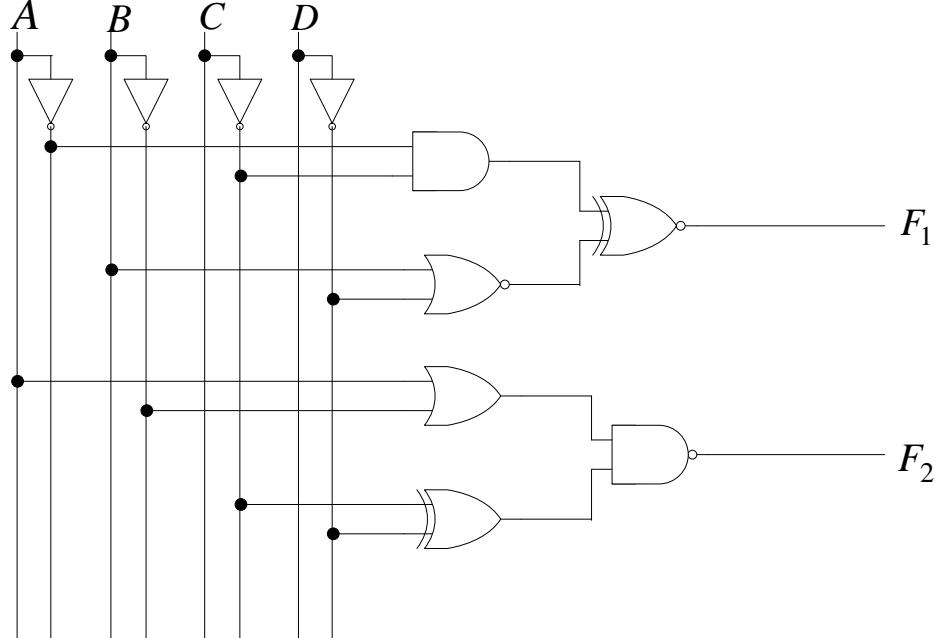
EAST WEST UNIVERSITY
Department of Computer Science and Engineering
B.Sc. in Computer Science and Engineering Program
Mid Term II Examination, Summer 2020 Semester

Course: CSE 345 Digital Logic Design, Section-3
Instructor: Musharrat Khan, Senior Lecturer, CSE Department
Full Marks: 30 (15 will be counted for final grading)
Time: 1 Hour and 20 Minutes (Including submission)

Note: There are FIVE questions, answer ALL of them. Course Outcome (CO), Cognitive Level and Mark of each question are mentioned at the right margin.

1. A combinational circuit has four inputs A, B, C , and D . The output F is 1 for two cases:
 Case 1: When only A and D are 1.
 Case 2: When only B and C are 1.
Design the combinational circuit. [CO3,C3, Mark: 6]

2. **Analyze** the following circuit by constructing truth table of the outputs. [CO2,C4, Mark: 6]



3. **Design** a full-adder using only AND, EXOR, and OR gates. [Draw block diagram, construct truth table, determine Boolean equations of outputs, and draw logic diagram] [CO3,C3, Mark: 6]

4. **Construct** a combinational circuit using an 8×1 MUX for implementing the following Boolean function. [Properly label all the inputs and outputs] [CO3,C6, Mark: 6]

$$F(A, B, C, D) = \prod(1, 5, 6, 8, 10, 12)$$

5. **Write** a behavioral Verilog code to design a 4×1 MUX with active-LOW enable input using Procedural technique using if statement. [CO3,C6, Mark: 6]