110年計算機結構 第5次小考

1. (30%) Calculate X x Y (X=1010111, Y=1001111)
   1. By Robertson multiplication algorithm.
   2. By Booth’s multiplication algorithm.
   3. By Modified Booth’s multiplication algorithm.
2. (20%) Calculate X x Y (X=0101111, Y=0001111)
   1. By Booth’s multiplication algorithm.
   2. By Modified Booth’s multiplication algorithm.
3. (20%) Calculate 110110011 / 1100

3.1 By restoring method.

3.2 By non-restoring method.

1. (30%) ALU design

4.1 Design a 4-bit arithmetic circuit with 4-bit full adder, NAND gates, and two selection variables,. The circuit generates the following micro-operation.(G)



4.2 Design a 4-bit logic circuit with two selection variables  and. The circuit operates the micro-operation. ,,, .

4.3 Give the circuit of Arithmetic and Logic Unit (ALU) that combines the circuits (4.1) and (4.2) .