

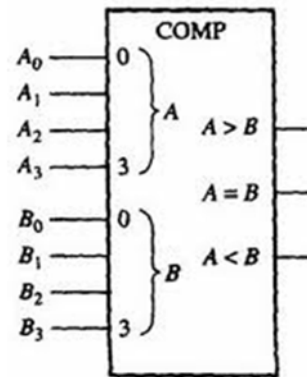
***KFUPM - ELECTRICAL ENGINEERING DEPARTMENT*****EE-200 – Digital Logic Circuit Design (section 05) – Quiz05 – Take Home –  
Due Sun Nov 15<sup>th</sup> in class****Student Name:****Student Number:****Problem (20 points):**

Using minimum MSI functional blocks and logic gates (if needed), it is desired to design a circuit that computes the largest of two 4-bit signed 2's complement binary numbers:  $y = y_3y_2y_1y_0$  and  $x = x_3x_2x_1x_0$ . Note that both numbers signed.

- (1) (10 points) Explain briefly the logic/steps/method/approach used to solve the problem.
- (2) (10 points) Draw your design depicting all needed signals and crossing all not-used lines.

Please note that part (2) is marked only if part (1) is provided/outlined.

**Hint:** a 4-bit magnitude comparator (shown in Figure) may be used to compare between two 4-bit unsigned numbers. On the side, test if it would work if we feed it two negative numbers. Would it work for two mixed (one signed and the other unsigned) numbers?



Functional block 4-bit magnitude comparator designed in class.