CS/EE120B **Quiz 4** December 2, 2004

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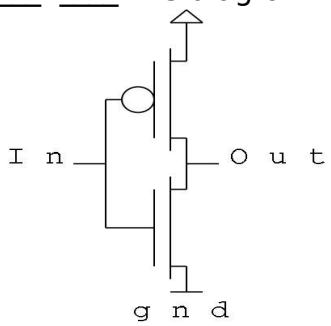
This Quiz is optional. The score you get on this quiz will replace your lowest score on previous quizzes, regardless of whether or not this score is lower than that quiz score.

Name:_Solutions_____ UCR ID:_____

1. __ABC____You can implement a general purpose processor on which of the following IC technologies? (list all that apply)
   a) Programmable Logic b) Full-Custom c) Semi-Custom
2. ____E___This diagram is best described as: (list all that apply)



a) AND gate
b) NOR gate
c) OR gate
d) Amplifier
e) Inverter

3. ___ACD__For this algorithm:

```
while (1) {
      x_reg = x_input;
      y_reg = y_input;
      if (y_reg > x_reg) {
            x_reg = y_reg * 2;
      }
      output_reg = x_reg;
}
```

list all the components that would be in the datapath (note: not all of the necessary components are listed)
a) three registers b) subtractor **c) multiplier d) comparator**
e) adder f) divider

4. ____F___T or F In a general purpose processor, the instruction register holds the address of the next instruction.
5. ____T___T or F By feeding the top (overflow) output of one 16 bit counter into the input of another counter, you are increasing the overall range.
6. ____F___T or F EPROM is the most common type of memory used in caches.
7. ____F___T or F In a two-way set associative cache, there is no need for a tag.
8. ____T___T or F A DMA allows a peripheral access to the main memory without requiring the processor to do the transfer itself
9. ____F___T or F For the 8 bit value '00101011' the correct 9 bit odd parity representation is: '001010110'.
10. ____AC__Circle the serial communication protocols: (list all that apply)
    a) I2C b)PCI **c) USB** d) Bluetooth