The next test will be on Wednesday March 29, 2005

1. When is the next test? ______________________________________
2. What is the Department of Defense symbol for an OR device? ____________________________
3. Does item (2) above function like an AND device? Yes __ or No __
4. If both inputs in item (4) above are active the contacts are open? Yes __ or No __
5. Both item (6) inputs must be passive for the contacts to be closed? Yes __ or No __
6. What kind of relay is the device shown as item #1 above? ____________________________
7. Does item (2) above function like an OR device? Yes __ or No __
8. Which item above is the best symbol to represent a flip-flop? _______
9. Is the LED in item 7 on (glowing) or off if both inputs are active? ON __ or OFF __
10. What is the unique input pattern for a 5 input AND device? _______
11. If a 5 ohm resistor is in series with a parallel set of two 10 ohm resistors the total resistance of that circuit is _______.
12. 1 Volt is 1 Coulomb of charge per Joule of energy. Yes __ or No __
13. Item (15) is the only way to wire a START push button. Yes __ or No __
14. Item (14) is the only way to wire a STOP push button. Yes __ or No __
15. If R1, R2, and R3, equal 5, 10, and 10 ohms, respectively, what is the value of the total resistance for the circuit shown as item (12) above. _______
16. If R1 equals 2R2, and R2 equals R3, what is the value of the Thevinin resistor in the Thevinin equivalent circuit of item (13)? _______
17. Draw (in space below) the function diagram for an instrument system with an active low pressure sense high and an active high level sense low set of sensors that will turn an LED off if either of the sensors is active. Clearly show how the LED is wired and include the current limiting resistor in the diagram.

18. Draw (in space below) the function diagram for an instrument system with a Start push button, a Stop push button and an active low pressure sense high and an active high level sense low set of sensors that will turn an LED off if either of the sensors is active. Clearly show how the LED is wired and include the current limiting resistor in the diagram.

19. LED's burn out if the current exceeds 16 milliamps. Calculate the highest resistor value allowed for the TTL circuit in item 7? What are its units?

20. If the pressure sensor in the process described in item (8) goes into alarm a logic 0 signal will show up at the "Motor Run" output (the Q output) of the 7474. Yes ___ or No ____.

21. The LED in item (11) will be bright enough to see if 16 millamps pass through it. What should the resistance value be to permit that amount of current to pass through the LED.

(Check later for more stuff)