

Physics 230: Problem Set #9

Due Thursday, May 18, 2006, 1:00 pm (in class)

- Text: Nigel P. Cook, Electronics: A Complete Course, Prentice Hall, 2nd Edition, 2004;
 - Please read Chapters 16, 23, 28;
1. Convert hexadecimal ABCD to its decimal equivalent.
 2. Convert decimal 4478 to its hexadecimal equivalent.
 3. Refer to Fig. 23-23 on page 789:
 - (a) What is the function of the 7442 in this circuit?
 - (b) What would happen to the output display if the input switches 1 and 3 were pressed simultaneously?
 - (c) If the number 4 LED were ON, what binary logic levels would you expect to find on the BCD inputs of the 7442, if you were to check using the logic probe?
 4. Refer to Fig. 23-25 on page 790:
 - (a) Is this circuit a decoder or encoder?
 - (b) Complete the function table in terms of the position of the rotary switch, which is grounded.
 5. Refer to Fig. 23-26 on page 790. What binary data will appear at the output as the counter cycles from 0 to 7?
 6. Refer to Fig. 28-3 on page 960. What analog output voltage will be generated by the circuit if a digital input of 1011 is applied and $V_{ref} = -15\text{ V}$?