For Problem Set #9   Your Name Here: _____

The following questions were taken from an "analytic" or "logic" section of a graduate or professional school admissions exam. Even though this course does not "teach to the test," after a semester of doing logic you will probably be pleasantly surprised at the number of things that you can figure out now that you probably would have missed before taking this class. So show off those new-found logical skills: use them to tackle these seven problems. For each question, circle the capital letter corresponding to the correct answer. Hand this sheet in by the beginning of class on Friday, December 8, and submit the rest of PS 9 by that time, too.

An interior decorator is designing a color scheme using at least one of the following colors: red, orange, yellow, indigo, green, and violet. No colors other than these may be used. The selection of colors for the scheme is must meet all of the following conditions:

- If the scheme uses orange, then it does not use indigo.
- If the scheme does not use green, then it uses orange.
- If the scheme uses yellow, then it uses both indigo and violet.
- If the scheme uses violet, then it uses red or green or both.

1. Which one of the following could be a complete and accurate list of the colors the scheme includes?

   (A) yellow, indigo
   (B) indigo, green
   (C) yellow, indigo, violet
   (D) yellow, green, violet
   (E) orange, yellow, indigo, violet

2. Which one of the following could be used alone, as the only color in the scheme?

   (A) red
   (B) yellow
   (C) indigo
   (D) green
   (E) violet

3. Which of the following CANNOT be a complete and accurate list of the colors used in the scheme?

   (A) orange, green
   (B) green, violet
   (C) red, orange, violet
   (D) yellow, indigo, green, violet
   (E) red, orange, yellow, indigo, violet

Problems continue on the reverse side.

4. If the scheme doesn't use violet, then which one of the following must be true?

   (A) The scheme uses orange.
   (B) The scheme uses at least two colors.
   (C) The scheme uses at most three colors.
   (D) The scheme uses neither yellow nor indigo.
   (E) The scheme uses neither yellow nor orange.

5. If the scheme uses violet, then which of the following must be false?

   (a) The scheme does not use red.
   (b) The scheme does not use green.
   (c) The scheme does not use indigo.
   (d) The scheme uses indigo but not yellow.
   (e) The scheme uses indigo but not green.

6. If the condition that if the scheme doesn't use green then it does use orange is suspended, and all the other conditions remain in effect, then which one of the following CANNOT be a complete and accurate list of the colors the scheme uses?

   (A) indigo
   (B) red, indigo
   (C) yellow, indigo, violet
   (D) red, indigo, violet
   (E) red, yellow, indigo, violet

7. Only corporate executives who behave ethically are likely to be promoted, but no corporate executive who makes wise business decisions is a poor employee. All corporate executives who behave ethically are both well respected and make wise business decisions, qualities lacking in many corporate executives who do not behave ethically.

   If all of the above statements are true, which one of the following must also be true?

   (A) No corporate executive who makes wise business decisions but does not behave ethically is well respected.
   (B) All corporate executives who are well respected but do not behave ethically make wise business decisions.
   (C) No corporate executive who is likely to be promoted is a poor employee.
   (D) All corporate executives who are not well respected are poor employees.
   (E) All corporate executives who are good employees behave ethically.