1. B

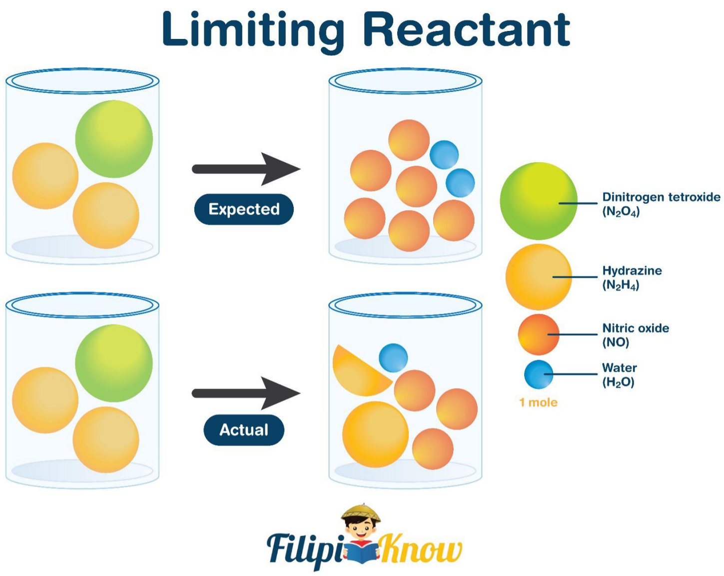
Explanation: Aside from the techniques discussed in the reviewer, another technique you can use is to simply substitute the choices to the given chemical reaction. Whichever set of coefficients balance the reaction is obviously the correct answer!

2. E

Explanation: Option A is incorrect because the species that undergoes oxidation is the reducing agent (remember GEROA). Option B is also incorrect because reducing agents undergo oxidation, hence, their oxidation number increases after a redox reaction. Lastly, option C is incorrect because as you've seen in our examples in balancing redox reactions using the ion-electron method, electron/s is/are written in the product side of OHR. This makes sense because electrons are lost during oxidation, therefore, it should be written in the product side.

3. A

Explanation: Based on the balanced chemical reaction, 2 moles of N_2H_4 will react with 1 mole of N_2O_4 to form 6 moles of NO and 2 moles of H_2O. In the problem, only 1 mole of N_2O_4 was used, while there are 2 moles of N_2H_4. Therefore, the limiting reactant is the N_2O_4. The illustration below demonstrates the difference between expected (based on chemical reaction) and actual scenario (based on the given problem).



4. C

Explanation: As explained in No. 3, only half of the limiting reactant is present in the reaction. Therefore, the amount of the product that will be formed is only half because the limiting reactant will be depleted by that time. Hence, instead of 6 moles NO, only 3 moles will be produced.

5. C

Explanation: Recall again that 2 moles of N_2H_4 will react with 1 mole of N_2O_4 according to the balanced reaction. However, since only half of N_2H_4 is available (1 mol instead of 2 mol), this implies that only half of N_2O_4 will be used as well (0.5 mol instead of 1 mol). Since there are 2 moles of N_2H_4 available and we are asked how much will remain unreacted, we simply subtract 0.5 to 2, which gives 1.5 moles of unreacted N_2H_4.