

Name: .....

ID: .....

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1. What is the oxidation number for each of the following elements? (1\* 3 = 3 points)  
(e.n.'s: C = 2.5, O = 3.5, H = 2.1)

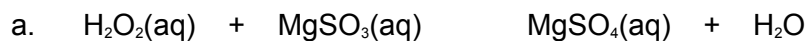
a. Co in  $\text{Co}(\text{NO}_3)_3$  \_\_\_\_\_

b. O in  $\text{HCHO}$  \_\_\_\_\_

c. I in  $\text{IO}_4^-$  \_\_\_\_\_

2. Draw energy diagrams of exothermic and endothermic reaction with low activation energy. (4 points)

3. What kind of reaction is shown below (between hydrogen peroxide and magnesium sulfite) (1+2+2 = 5 points)



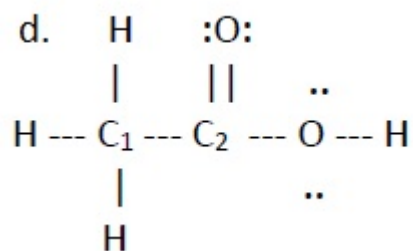
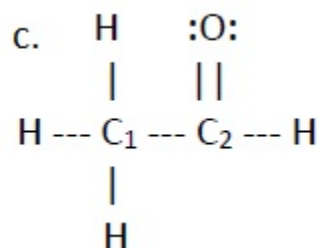
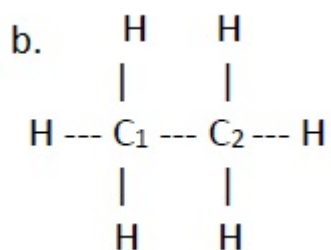
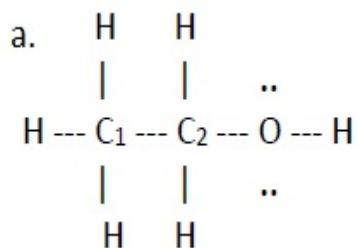
Precipitation      gas formation      acid-base neutralization      redox reaction

b. Write the total ionic equation for the reaction shown in Question a.

c. Now convert the total ionic equation in Question b into its net ionic equation.

4. Write the formula for the precipitate that forms when a solution of  $\text{Cu}(\text{NO}_3)_2$  is added to a solution of  $\text{NaOH}$ . (2 points)

5. Explain which of the compounds represent the MOST OXIDIZED and MOST REDUCED class? (3+3 = 6 points)

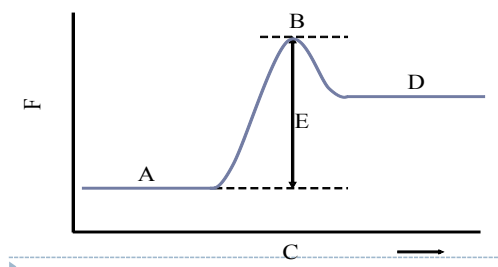


Answer with the number of the compound:

Most oxidized:

Most reduced:

7. (5 points) Examine the figure and below answer the following questions



- a) What type of reaction is this .....
- b) What is indicated by the letter A .....
- c) What is indicated by the letter B .....
- d) What is indicated by the letter C .....
- e) What is indicated by the letter D .....