

73.5/83 89%

14. a) Calcium Chloride  
b) Iron (III) Nitrate  
c) Sulfur Trioxide  
d) Mercury (II) Sulphate  
e) Silver Carbonate

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15. a)  $\text{Au}_2\text{O}_3$   
b)  $\text{NBr}_3$   
c)  $\text{Ni}_3(\text{PO}_4)_2$   
d)  $\text{Mg}(\text{OH})_2$   
e)  $\text{Li}_3\text{N}$

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16. a)  $2\text{Ba} + \text{O}_2 \rightarrow 2\text{BaO}$   
b)  $2\text{AgNO}_3 + \text{CuCl}_2 \rightarrow 2\text{AgCl} + \text{Cu}(\text{NO}_3)_2$   
c)  $3\text{Mg} + 2\text{FeF}_3 \rightarrow 2\text{Fe} + 3\text{MgF}_2$   
d)  $3\text{CaO} + 2\text{H}_3\text{PO}_4 \rightarrow \text{Ca}(\text{PO}_4)_2 + 3\text{H}_2\text{O}$   
e)  $3(\text{NH}_4)_2\text{S} + 2\text{CoCl}_3 \rightarrow \text{Co}_2\text{S}_3 + 6\text{NH}_4\text{Cl}$

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17. a) Single Displacement Reaction  
b) Decomposition Reaction  
c) Synthesis Reaction  
d) Double Displacement Reaction  
e) Decomposition Reaction  
f) Single Displacement Reaction  
g) Double Displacement Reaction  
h) Synthesis Reaction

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18. a)  $\text{Mg} + \text{CuCl}_2 \rightarrow \text{Cu} + \text{MgCl}_2$   
b)  $\text{PbSO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{Pb}$   
c)  $\text{Br}_2 + 2\text{AgI} \rightarrow \text{I}_2 + 2\text{AgBr}$   
d) No Reaction

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19. Order of Reactivity:

- Zinc
- Iron

- Nickel
- Copper

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Selecting the most reactive was my first choice. Since the galvanized nail was forming brown bubbles and had rusted, it was placed as the most reactive. The iron nail was then placed as the second most reactive since it had rusted completely. After the iron nail came the nickel. The nickel was the second least reactive because it appeared tarnished whereas the other two nails had completely rusted. The copper penny was placed as the least reactive because there wasn't a reaction except that it got cleaner, or rather, the copper was becoming more prominent.

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20. a) Very Acidic  
 b) Slightly Basic  
 c) Neutral slightly acidic (<7)  
 d) Very Basic  
 e) Slightly Acidic

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21. a) Sulphuric Acid + Sodium Hydroxide → Sodium ~~Sulphide~~ sulphate + Water  
 b) Magnesium Hydroxide + Hydrochloric Acid → Magnesium Chloride + Water  
 c)  $\text{HNO}_3 + \text{LiOH} \rightarrow \text{LiNO}_3 + \text{H}_2\text{O}$   
 d)  $\text{H}_2\text{SO}_4 + 2\text{NaOH} \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$

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22. a) ~~Carbon Sulphide + Oxygen → Carbon Dioxide + Sulphur Dioxide~~  
 ~~$\text{H}_2\text{CS}_2 + 3\text{O}_2 \rightarrow \text{CO}_2 + 2\text{SO}_2$~~

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It said write equations...these are two separate equations.

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b) Both products are harmful to the environment. The carbon dioxide cause the pH of the ocean and the rain to decrease (increase in acidity) thereby being a pollutant. For the sulphuric acid, it is harmful for the same reasons as carbon dioxide and more. Sulphur dioxide is highly acidic in that it can produce sulphurous oxide and then sulphuric acid when dissolved in water. When these products are mixed with the air, they may cause the rain to become nearly 100 times more acidic which is deadly to the environment.

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- c) Carbon Dioxide + Water → Carbonic Acid  
 $\text{C}_2\text{O} + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3$   
 Sulphur Dioxide + Water → Sulphurous Acid → Sulphuric Acid  
 $\text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_3 \rightarrow \text{H}_2\text{SO}_4$

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23. a) Complete Reaction  
b) Complete Reaction  
c) Incomplete Reaction  
d) Incomplete Reaction

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24. a)  $C_7H_{16} + 11O_2 \rightarrow 7CO_2 + 8H_2O$   
b)  $C_7H_{16} + 10O_2 \rightarrow 5CO_2 + 2CO + 8H_2O$

6/6

25. The importance of making sure the furnace is tuned up and in proper working condition before the winter (when it would be in use) is because it may produce excess carbon monoxide gas. Carbon monoxide gas is poisonous to humans and attaches to the haemoglobin and suffocates their attachments to oxygen molecules. Because carbon monoxide reduces the efficiency of the haemoglobin, the body is not able to get an ample amount of oxygen that it requires and therefore killing the person.

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26. I agree with the United States not purchasing from the Alberta Oil Sands since it will force the Alberta Oil Sands to become more ecofriendly to the Canadian land and for pushing the oil market to becoming supportive for the global ecosystem. Since the United States government would be the greatest international buyer, then for the **Alberta government to not suffer economically**, then their **the Alberta government does not own the facilities** only choice would be to update their facilities before production "[quadruples] to four or five million barrels of refined oil a day by 2020." (Gillespie, 2008) Since the United States also purchases 40% of their oil overseas (U.S. Energy Information Administration, 2013), then their overseas oil providers will need to update their facilities which in effect, will improve the global ecosystem. When the United States removes the Alberta Oil Sands as a provider, it would ensure that the Alberta ecosystem has fewer pollutants and their oversea providers update their facilities which, in a whole, would improve the global ecosystem.

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I recognize what you are saying...but if was only that easy.

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## References

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[http://www.canadiangeographic.ca/magazine/jun08/feature\\_tar\\_sands.asp](http://www.canadiangeographic.ca/magazine/jun08/feature_tar_sands.asp)

U.S. Energy Information Administration. (2013, June 3). *How dependent is the United States on foreign oil? - FAQ*. Retrieved August 28, 2013, from U.S. Energy Information Administration (EIA):  
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