

TICKET TO THE TEST

Unit 11 Kinetics & Equilibrium

Directions: Answer all questions and show all work. Use your notebook, homework, and videos to help you review all the concepts. I might ask you to come up with your own examples. Come after school if you have questions. You should be supplying me with anything you think may be tested. Then, use this as a study sheet. It is due BEFORE the test. No late tickets will be accepted. This could be worth up to ten points on the test. The more you show, the more points you get, the more you might actually remember!

1. Explain what two parameters are needed in order for a reaction to be considered effective. Draw examples of reactions and give analogies.

Effective collisions need proper _____ and _____

Analogy:

2. List and explain the five factors that affect the rate of reaction and how they do it:

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

3. Go back into your homework and class packets and find a question about reaction rates that you got wrong the first time. Give the question and explain the correct answer:

4. Pretend you are the teacher. Create a question that you could ask in order to judge if your students know what factors affect reaction rates and why. Create the question and answer.

Question:

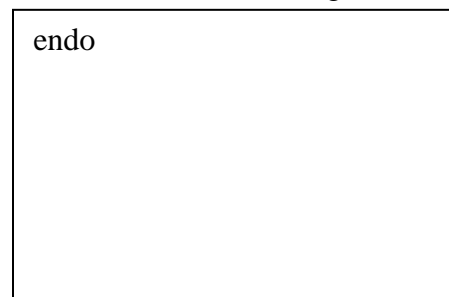
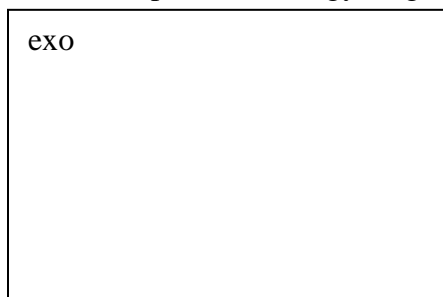
Answer:

5. Using table I give examples for the following:

- a. Endothermic reaction: _____
- b. Exothermic reaction: _____
- c. Doubling a reactions and finding enthalpy values:
- d. Reversing a reaction and finding enthalpy values:

6. Draw an exothermic and an endothermic potential energy diagram and label with the following with a-e:

- a. Reactants
- b. Products
- c. Activated complex
- d. Activation energy
- e. Heat of reaction



7. Compare and contrast your two drawings.

8. If values were given, how could you calculate the heat of reaction?

HEAT OF REACTION =

9. What factors (a-e) change when a catalyst is added? Why? What does a catalyst do?

Factors that change with a catalyst: _____

Role of a catalyst: _____

10. Why do these PE diagrams have a “bump” even though energy is sometimes exothermic and releasing?

11. Give examples of **ACTIVATION ENERGY:** _____

12. If you were the teacher, what additional question would you ask to measure a student’s understanding of PE diagrams?

Question:

Answer:

13. Define entropy:

ENTROPY: _____

14. Give examples of:

a. A reaction where entropy increases because of the phases:

b. A reaction where entropy increases because of amounts:

c. A reaction where entropy decreases because of the phases:

d. A reaction where entropy decreases because of amounts:

15. How do changes in temperature affect entropy?

16. What two factors make reactions spontaneous _____ energy; _____ entropy? Give an analogy.

SPONTANEOUS REACTIONS _____

Example:

17. **What is equal about equilibrium?** _____

18. What special sign do equilibrium reactions get?

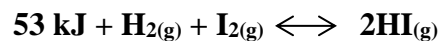


19. At equilibrium, what happens to the quantities of reactants and products? _____

20. Give a word that represents a solution at equilibrium:

_____ **means a solution is at equilibrium.**

21. Using the following reaction, construct questions about concentration, pressure, volume, catalyst, and temperature changes on the system and then answer them.



Question

Answer

- | | | |
|----|-------|-------|
| a. | _____ | _____ |
| b. | _____ | _____ |
| c. | _____ | _____ |
| d. | _____ | _____ |
| e. | _____ | _____ |

22. What topics do you still need to study after completeing this packet? Show me work for additional examples you have done:

What is your goal grade on this kinetics test? Be reasonable. _____
Do you really feel you did enough to achieve that goal? Why or why not?