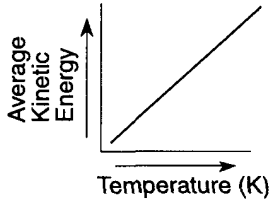
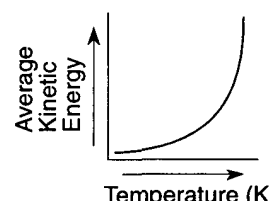
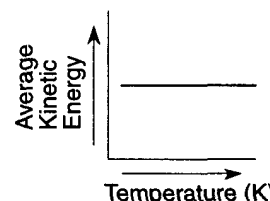
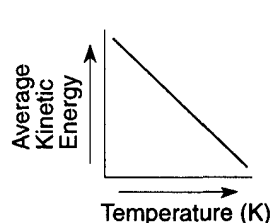


1. Which property is a measure of the average kinetic energy of the particles in a sample of matter?
- A) mass B) density
C) pressure D) temperature
2. Which statement defines the temperature of a sample of matter?
- A) Temperature is a measure of the total electromagnetic energy of the particles.
B) Temperature is a measure of the total thermal energy of the particles.
C) Temperature is a measure of the average potential energy of the particles.
D) Temperature is a measure of the average kinetic energy of a particles.
3. Which sample of water contains particles having the highest average kinetic energy?
- A) 25 mL of water at 95°C
B) 45 mL of water at 75°C
C) 75 mL of water at 75°C
D) 95 mL of water at 25°C
4. The particles in which sample of LiCl(s) have the same average kinetic energy as the particles in a 2.0-mole sample of H₂O(l) at 25°C?
- A) 1.0 mol at 75°C B) 2.0 mol at 50.°C
C) 3.0 mol at 25°C D) 4.0 mol at 0°C
5. An iron bar at 325 K is placed in a sample of water. The iron bar gains energy from the water if the temperature of the water is
- A) 65 K B) 45 K C) 65°C D) 45°C
6. At which temperature would atoms of a He(g) sample have the greatest average kinetic energy?
- A) 25°C B) 37°C
C) 273 K D) 298 K
7. As the temperature of a substance decreases, the average kinetic energy of its particles
- A) decreases B) increases
C) remains the same
8. An increase in the average kinetic energy of a sample of copper atoms occurs with an increase in
- A) concentration B) temperature
C) pressure D) volume
9. Which change in the temperature of a 1-gram sample of water would cause the greatest increase in the average kinetic energy of its molecules?
- A) 1°C to 10°C B) 10°C to 1°C
C) 50°C to 60°C D) 60°C to 50°C
10. Which graph best shows the relationship between Kelvin temperature and average kinetic energy?
- A) 
- B) 
- C) 
- D) 
11. The average kinetic energy of water molecules increases when
- A) H₂O(s) changes to H₂O(l) at 0°C
B) H₂O(l) changes to H₂O(s) at 0°C
C) H₂O(l) at 10°C changes to H₂O(l) at 20°C
D) H₂O(l) at 20°C changes to H₂O(l) at 10°C

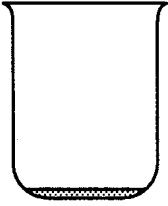
12. Which sample of Fe contains particles having the highest average kinetic energy?

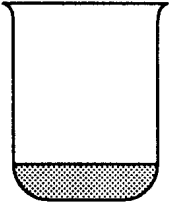
- A) 5 g at 10°C B) 10 g at 25°C
C) 5 g at 400 K D) 10 g at 300 K

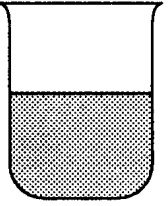
13. At which temperature does an aqueous solution of LiCl have the highest average kinetic energy?

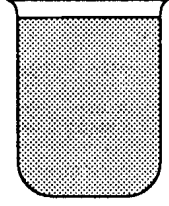
- A) 100°C B) 200°C
C) 273 K D) 373 K

14. In which beaker would the particles have the highest average kinetic energy?

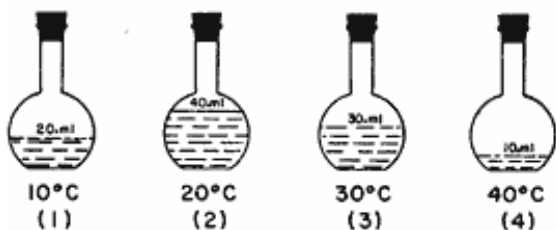
A)  10 milliliters
0.1 M HCl at 20°C

B)  50 milliliters
0.1 M HCl at 10°C

C)  200 milliliters
0.1 M HCl at 30°C

D)  400 milliliters
0.1 M HCl at 15°C

15. Base your answer to the following question on the diagrams below of four sealed flasks, each of which contains $\text{H}_2\text{O}(\ell)$ at the temperature shown.



In which flask do the molecules of H_2O have the greatest average kinetic energy?

- A) 1 B) 2 C) 3 D) 4

16. At which conditions of temperature and pressure would the molecules of a gas have the greatest average kinetic energy?

- A) 0°C and 3 atm B) 10°C and 2 atm
C) 50°C and 4 atm D) 100°C and 1 atm

17. Which temperature is equal to 120. K?

- A) -153°C B) -120.°C
C) +293°C D) +393°C

18. The temperature of a sample of a substance changes from 10.°C to 20.°C. How many Kelvin does the temperature change?

- A) 10. B) 20. C) 283 D) 293

19. At 1 atmosphere of pressure, the fixed temperature points on a Celsius thermometer are located on the basis of

- A) the ice/water equilibrium temperature, only
B) the water/steam equilibrium temperature, only
C) both the ice/water and the water/steam equilibrium temperatures
D) neither the ice/water nor the water/steam equilibrium temperatures

20. Energy is being added to a given sample. Compared to the Celsius temperature of the sample, the Kelvin temperature

- A) will always be 273° greater
B) will always be 273° lower
C) will have the same reading at 0°
D) will have the same reading at 273°