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1. **012 Chapter #016**

Which of the following atoms does *not* participate in hydrogen bonding?

Student Response	Value	Correct Answer	Feedback
a. S			
b. O			
c. F			
d. N			

Score: 3.57/3.57

2. **011 Chapter #021**

A sample of an ideal gas has its volume doubled while its temperature remains constant. If the original pressure was 100 torr, what is the new pressure?

Student Response	Value	Correct Answer	Feedback
a. 10 torr			
b. 50 torr			
c. 100 torr			
d. 200 torr			
e. 1000 torr			

Score: 3.57/3.57

3. **012 Chapter #031**

Which of the following should have the lowest boiling point?

Student Response	Value	Correct Answer	Feedback
a. C ₅ H ₁₂			
b. C ₆ H ₁₄			
c. C ₈ H ₁₈			

d. $C_{10}H_{22}$

e. $C_{12}H_{26}$

Score: 3.57/3.57

4. **012 Chapter #011**

For which of the following species are the intermolecular interactions entirely due to dispersion forces?

Student Response	Value	Correct Answer	Feedback
a. C_2H_6			
b. CH_3OCH_3			
c. NO_2			
d. H_2S			
e. $CaNO_3$			

Score: 3.57/3.57

5. **012 Chapter #006**

Which one of the following involves hydrogen bonding?

Student Response	Value	Correct Answer	Feedback
a. CH_4			
b. $H_2C=CH_2$			
c. H_2O			
d. $CHCl_3$			
e. $CFOH$			

Score: 3.57/3.57

6. **012 Chapter #041**

Use the following data to determine the molar heat of vaporization of chlorine ($R = 8.314 \text{ J/K mol}$).

T ($^{\circ}C$)	-84.5	-71.2	-47.3
P (mmHg)	40.0	100.0	400.0

Student Response	Value	Correct Answer	Feedback
a. 34,700 J			
b. 21,900 J			

- c. 317 J
- d. 712 J
- e. 9.99 kJ

Score: 0/3.57

7. **011 Chapter #006**

The pressure of hydrogen sulfide gas in a container is 35,650 Pa. What is this pressure in torr (1 atm = 101,325 Pa = 760 torr)?

Student Response	Value	Correct Answer	Feedback
a. 46.91 torr			
b. 267.4 torr			
c. 351.8 torr			
d. 3612 torr			
e. 27,090 torr			

Score: 3.57/3.57

8. **012 Chapter #071**

What mass of water would need to evaporate from your skin in order to dissipate 1.7×10^5 J of heat from your body? $\text{H}_2\text{O}(\text{l}) \rightarrow \text{H}_2\text{O}(\text{g}) \Delta H_{\text{vap}} = 40.7 \text{ kJ/mol}$

Student Response	Value	Correct Answer	Feedback
a. 7.52×10^4 g			
b. 418 g			
c. 75.2 g			
d. 58.4 g			
e. 6.92×10^6 g			

Score: 3.57/3.57

9. **011 Chapter #016**

"The volume of an ideal gas is directly proportional to the number of moles of the gas at constant temperature and pressure" is a statement of _____ Law.

Student Response	Value	Correct Answer	Feedback
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- a. Charles's
- b. Boyle's
- c. Amontons's
- d. Avogadro's
- e. Gay-Lussac's

Score: 3.57/3.57

10. 011 Chapter #002

Which is not a property of a gas?

Student Response	Value	Correct Answer	Feedback
a. density varies with temperature			
b. assumes the shape and volume of its container			
c. is compressible			
d. density is larger than that of a liquid			
e. forms homogeneous mixtures with one another			

Score: 3.57/3.57

11. 012 Chapter #066

Which one of the following crystallizes in a metallic lattice?

Student Response	Value	Correct Answer	Feedback
a. C			
b. NaMnO_4			
c. K			
d. LiClO_4			
e. $\text{K}_2\text{Cr}_2\text{O}_7$			

Score: 3.57/3.57

12. 011 Chapter #056

Magnesium metal (0.100 mol) and a volume of aqueous hydrochloric acid that contains 0.500 mol of HCl are combined and react to completion. How many liters of hydrogen gas, measured at STP, are produced? $\text{Mg}(s) + 2\text{HCl}(aq) \rightarrow \text{MgCl}_2(aq) + \text{H}_2(g)$ ($R = 0.08206 \text{ L atm/mol K}$)?

Student Response	Value	Correct Answer	Feedback
a. 2.24 L of H ₂			
b. 4.48 L of H ₂			
c. 5.60 L of H ₂			
d. 11.2 L of H ₂			
e. 22.4 L of H ₂			

Score: 3.57/3.57

13. 011 Chapter #046

Assuming ideal behavior, what is the density of argon gas at STP, in g/L ($R = 0.08206 \text{ L atm/mol K}$)?

Student Response	Value	Correct Answer	Feedback
a. 0.0176 g/L			
b. 0.0250 g/L			
c. 0.0561 g/L			
d. 1.78 g/L			
e. 181. g/L			

Score: 3.57/3.57

14. 012 Chapter #036

Krypton has a *higher* melting point than argon because of its:

Student Response	Value	Correct Answer	Feedback
a. hydrogen bonding.			

b. stronger dispersion forces.

c. permanent dipole moment.

d. ionic bonds.

e. greater ionization energy.

Score: 3.57/3.57

15. 011 Chapter #026

A sample of nitrogen gas has a volume of 32.4 L at 20°C. The gas is heated to 220°C at constant pressure. What is the final volume of nitrogen?

Student Response	Value	Correct Answer	Feedback
a. 2.94 L			
b. 19.3 L			
c. 31.4 L			
d. 54.5 L			
e. 356 L			

Score: 3.57/3.57

16. 012 Chapter #061

A metal such as chromium in the face-centered cubic lattice will have _____ atom(s) per unit cell.

Student Response	Value	Correct Answer	Feedback
a. 1			
b. 2			
c. 3			
d. 4			
e. 10			

Score: 3.57/3.57

17. 012 Chapter #002

Which of the following are considered van der Waals forces?

I. dispersion forces; II. dipole-dipole interactions, III. hydrogen bonding.

Student Response	Value	Correct Answer	Feedback
a. I and III			
b. II only			
c. III only			
d. I, II, and III			
e. I only			

Score: 3.57/3.57

18. 011 Chapter #051

A 0.271 g sample of an unknown vapor occupies 294 mL at 140°C and 847 mmHg. The empirical formula of the compound is CH₂. What is the molecular formula of the compound (R = 0.08206 L atm/mol K)?

Student Response	Value	Correct Answer	Feedback
a. CH ₂			
b. C ₂ H ₄			
c. C ₃ H ₆			
d. C ₄ H ₈			
e. C ₆ H ₁₂			

Score: 3.57/3.57

19. 011 Chapter #011

A flask containing argon gas is connected to a closed-ended mercury manometer. The closed end is under vacuum. If the mercury level in the closed arm is 230. mm above that in the arm connected to the flask, what is the argon pressure, in torr?

Student Response	Value	Correct Answer	Feedback
a. -230.			
b. 230.			
c. 530.			
d. 790.			
e. None of these choices is correct.			

Score: 0/3.57

20. 012 Chapter #021

The strongest intermolecular interactions between pentane (C_5H_{12}) molecules arise from:

Student Response	Value	Correct Answer	Feedback
a. dipole-dipole forces.			
b. London dispersion forces.			
c. hydrogen bonding.			
d. ion-dipole interactions.			
e. carbon-carbon bonds.			

Score: 3.57/3.57

21. 011 Chapter #061

A block of dry ice (solid CO_2 , density = 1.56 g/mL) of dimensions 25.0 cm \times 25.0 cm \times 25.0 cm is left to sublime (i.e., to pass from the solid phase to the gas phase) in a closed chamber of dimensions 4.00 m \times 5.00 m \times 3.00 m. The partial pressure of carbon dioxide in this chamber at 25°C will be ($R = 0.08206$ L atm/mol K, 1 atm = 760 mmHg):

Student Response	Value	Correct Answer	Feedback
a. 171 mmHg			
b. 107 mmHg			
c. 0.225 mmHg			
d. 0.171 mmHg			
e. 14.4 mmHg			

22. 011 Chapter #031

A gas sample occupies 8.76 L at a temperature of 37°C, what is the volume if the temperature is lowered to 0°C at constant pressure?

Student Response	Value	Correct Answer	Feedback
a. 9.95 L			
b. 0 L			
c. 4.22 L			
d. 74.1 L			
e. 7.71 L			

Score: 3.57/3.57

23. 011 Chapter #041

A gas cylinder containing 1.50 mol compressed methane has a volume of 3.30 L. What pressure does the methane exert on the walls of the cylinder if its temperature is 25°C ($R = 0.08206 \text{ L atm/mol K}$)?

Student Response	Value	Correct Answer	Feedback
a. $9.00 \times 10^{-2} \text{ atm}$			
b. 0.933 atm			
c. 1.11 atm			
d. 1.70 atm			
e. 11.1 atm			

Score: 3.57/3.57

24. 011 Chapter #036

A gas evolved during the fermentation of sugar was collected at 22.5°C and 702 mmHg. After purification its volume was found to be 25.0 L. How many moles of gas were collected ($R = 0.08206 \text{ L atm/mol K}$, $1 \text{ atm} = 760 \text{ mmHg}$)?

Student Response	Value	Correct Answer	Feedback
a. 0.95 mol			
b. 1.05 mol			
c. 12.5 mol			
d. 22.4 mol			
e. 724 mol			

Score: 3.57/3.57

25. 012 Chapter #051

Which of the following terms refers to the resistance of a liquid to flow?

Student Response	Value	Correct Answer	Feedback
a. surface tension			
b. capillary action			
c. viscosity			
d. adhesion			
e. cohesion			

Score: 3.57/3.57

26. 012 Chapter #026

What is determined by the magnitude of intermolecular forces in a liquid and is a measure of a fluid's resistance to flow?

Student Response	Value	Correct Answer	Feedback
a. surface tension			
b. adhesion			
c. polarity			
d. viscosity			
e. cohesion			

Score: 3.57/3.57

27. 012 Chapter #046

Liquid sodium can be used as a heat transfer fluid. Its vapor pressure is 40.0 torr at 633°C and 400.0 torr at 823°C. Calculate its heat of vaporization.

Student Response	Value	Correct Answer	Feedback
a. 43.4 kJ/mol			
b. 52.5 kJ/mol			
c. 70.6 kJ/mol			
d. 1.00×10^2 kJ/mol			
e. None of these choices is			

correct.

Score: 0/3.57

28. 012 Chapter #056

Palladium crystallizes in a face-centered cubic unit cell. Its density is 12.0 g/cm^3 at 27°C . Calculate the atomic radius of Pd.

Student Response	Value	Correct Answer	Feedback
a. 138 pm			
b. $1.95 \times 10^{-8} \text{ nm}$			
c. $1.95 \times 10^{-8} \text{ cm}$			
d. 154 pm			
e. 0.109 nm			

Score: 3.57/3.57