CALIFORNIA CHEMISTRY · UNIT 3 · 25 QUESTIONS

# Stoichiometry, Solutions, and Gases — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

**1** One mole of any substance contains about

- A $3.01\times10^{23}$
- B $6.02\times10^{22}$
- C $1.60\times10^{23}$
- D $6.02\times10^{23}$

Understand It with Pulse | Flag a mistake

**2** Water has molar mass 18 grams per mole The number of moles in 36 g of water is

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **Using atomic masses 12 for carbon and 16 for oxygen, the molar mass of carbon dioxide, in grams per mole, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **Sodium chloride has molar mass 58.5 grams per mole The mass, in grams, of 3 mol of sodium chloride is**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **In the reaction**
**$2\ H_2 + O_2 \rightarrow 2\ H_2O$ ,**
**the number of moles of water formed from 4 mol of hydrogen with excess oxygen is**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **In the reaction**
**$N_2 + 3\ H_2 \rightarrow 2\ NH_3$ ,**
**the number of moles of ammonia formed from 3 mol of hydrogen with excess nitrogen is**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **A reaction has a theoretical yield of 50 g and an actual yield of 40 g The percent yield is**

ANSWER

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8 **A solution contains 2 mol of solute in 0.5 L of solution Its molarity, in mol per litre, is**

ANSWER

Understand It with Pulse | Flag a mistake

9 **A 2 mol per litre solution of volume 100 mL is diluted to 500 mL The new molarity, in mol per litre, is**

ANSWER

Understand It with Pulse | Flag a mistake

10 **The number of moles in 2 L of a 0.5 mol per litre solution is**

ANSWER

Understand It with Pulse | Flag a mistake

11 **The mass, in grams, of sodium chloride in 1 L of a 1 mol per litre solution, using molar mass 58.5 grams per mole, is**

ANSWER

Understand It with Pulse | Flag a mistake

12 **A gas at 100 kPa occupies 2 L at constant temperature If the pressure is increased to 200 kPa, the new volume, in litres, is**

ANSWER

Understand It with Pulse | Flag a mistake

13 **A gas occupies 2 L at 300 K at constant pressure If the temperature is increased to 600 K, the new volume, in litres, is**

ANSWER

Understand It with Pulse | Flag a mistake

14 **A gas at 100 kPa and 300 K occupies 2 L If the pressure changes to 200 kPa and the temperature changes to 600 K, the new volume, in litres, is**

ANSWER

Understand It with Pulse | Flag a mistake

15 **At standard temperature and pressure, one mole of an ideal gas occupies about 22.4 L The volume, in litres, of 2 mol of gas at standard temperature and pressure is**

ANSWER

Understand It with Pulse | Flag a mistake

16 **In a mixture of gases, the total pressure is the**

A Product of the partial pressures

B Sum of the partial pressures

C Difference of the partial pressures

D Average of the partial pressures

Understand It with Pulse | Flag a mistake

17 **According to kinetic molecular theory, gas pressure is caused by**

A Gas molecules attracting the walls

B Gas molecules dissolving

C Gas molecules colliding with the walls of the container

D Gas molecules expanding in size

Understand It with Pulse | Flag a mistake

18 **A temperature of 25 degrees Celsius converted to kelvin is**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **A solution is made by dissolving 10 g of salt in 90 g of water The mass percent of salt in the solution is**

ANSWER _____

Understand It with Pulse | Flag a mistake

20 In water, $H_2O$ , using atomic masses 1 for hydrogen and 16 for oxygen, the percent by mass of hydrogen is about

ANSWER

Understand It with Pulse | Flag a mistake

21 In the reaction
$2\ H_2 + O_2 \rightarrow 2\ H_2O$ ,
the mass, in grams, of water formed from 2 mol of hydrogen, using molar mass 18 grams per mole for water, is

ANSWER

Understand It with Pulse | Flag a mistake

22 In the reaction
$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$ ,
the number of moles of carbon dioxide formed from 3 mol of methane with excess oxygen is

ANSWER

Understand It with Pulse | Flag a mistake

**23** **At constant volume, increasing the temperature of a gas increases its pressure because molecules**

- **A** Stop moving
- **B** Collide with the walls more often and with more force
- **C** Move slower
- **D** Shrink

Understand It with Pulse | Flag a mistake

**24** **A saturated solution is one that**

- **A** Contains the maximum solute dissolved at that temperature
- **B** Is always hot
- **C** Contains no solute
- **D** Contains only solvent

Understand It with Pulse | Flag a mistake

25 **The number of moles in 250 mL of a 2 mol per litre solution is**

ANSWER

Understand It with Pulse | Flag a mistake

# ANSWER KEY

| | | | | | |
|---|---|---|---|---|---|
| **1.** | D | **10.** | 1 | **19.** | 10 |
| **2.** | 2 | **11.** | 58.5 | **20.** | 11.1 |
| **3.** | 44 | **12.** | 1 | **21.** | 36 |
| **4.** | 175.5 | **13.** | 4 | **22.** | 3 |
| **5.** | 4 | **14.** | 2 | **23.** | B |
| **6.** | 2 | **15.** | 44.8 | **24.** | A |
| **7.** | 80 | **16.** | B | **25.** | 0.5 |
| **8.** | 4 | **17.** | C | | |
| **9.** | 0.4 | **18.** | 298 | | |

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