CALIFORNIA CHEMISTRY · FINAL EXAM · 50 QUESTIONS

Final Exam — 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 **An atom of carbon has atomic number 6 and mass number 12 The number of neutrons is**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **A covalent bond forms when atoms**

A. Share electrons

B. Lose neutrons

C. Gain whole shells

D. Transfer protons

Understand It with Pulse | Flag a mistake

3 **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

4 **An endothermic reaction absorbs energy, so the temperature of the surroundings typically**

- A Stays the same
- B Reaches boiling point
- C Falls
- D Rises

Understand It with Pulse | Flag a mistake

5 **An isotope with 6 protons and 8 neutrons has mass number**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **Which molecule is polar**

- **A** H_2
- **B** N_2
- **C** O_2
- **D** HCl

Understand It with Pulse | Flag a mistake

7 **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 _____

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8 **Breaking bonds in reactants requires energy, while forming bonds in products**

A Has no energy change

B Destroys energy

C Requires energy

D Releases energy

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9 **The most electronegative element is**

A Oxygen

B Nitrogen

C Chlorine

D Fluorine

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10 **The formula of magnesium chloride is**

A $MgCl_2$

B Mg_2Cl_2

C Mg_2Cl

D $MgCl$

Understand It with Pulse | Flag a mistake

11 **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

12 **If more reactant is added to a system at equilibrium, the equilibrium typically shifts toward the**

A Products

B Catalyst

C Reactants

D Solvent

Understand It with Pulse | Flag a mistake

13 **Chlorine has isotopes of mass 35 (75 percent) and mass 37 (25 percent) The average atomic mass is about**

A 37.0

B 36.0

C 35.0

D 35.5

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14 **The reaction**
$2\ Na + Cl_2 \rightarrow 2\ NaCl$
is an example of

A Neutralization

B Double displacement

C Synthesis

D Decomposition

Understand It with Pulse | Flag a mistake

15 **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

16 **A catalyst in an equilibrium system speeds up both forward and reverse reactions and**

A Stops the reverse reaction

B Shifts equilibrium to reactants

C Does not change the equilibrium position

D Shifts equilibrium to products

Understand It with Pulse | Flag a mistake

17 **Down a group, atomic radius generally increases because each step adds a new**

A Valence electron only

B Proton only

C Neutron only

D Electron shell

Understand It with Pulse | Flag a mistake

18 **The oxidation number of nitrogen in nitrogen dioxide, NO_2 , is**

ANSWER

Understand It with Pulse | Flag a mistake

19 **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

20 **At 25 degrees Celsius, pH plus pOH equals 14 A solution with pH 9 has pOH**

ANSWER

Understand It with Pulse | Flag a mistake

21 **The average atomic mass of an element is a weighted average based on the**

- **A** Number of electrons
- **B** Relative abundance of its isotopes
- **C** Number of bonds
- **D** Atomic number only

Understand It with Pulse | Flag a mistake

22 **Nitrogen has atomic number 7 How many valence electrons does a nitrogen atom have**

- **A** 7
- **B** 5
- **C** 3
- **D** 2

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23 **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

24 **An alpha particle is a helium nucleus, so alpha decay reduces the mass number by 4 and the atomic number by**

A 1

B 2

C 0

D 4

Understand It with Pulse | Flag a mistake

25 **A metalloid has properties**

- **A** Of noble gases only
- **B** Of metals only
- **C** Intermediate between metals and nonmetals
- **D** Of nonmetals only

Understand It with Pulse | Flag a mistake

26 **Which substance has only London dispersion forces between its molecules**

- **A** NH_3
- **B** H_2O
- **C** H_2
- **D** HCl

Understand It with Pulse | Flag a mistake

27 **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

28 **Gamma radiation changes neither the mass number nor the atomic number, and is best described as**

A High energy electromagnetic radiation

B A proton

C An electron

D A helium nucleus

Understand It with Pulse | Flag a mistake

29 **When chlorine gains one electron it forms an ion with charge**

A 1-

B 0

C 1+

D 2-

Understand It with Pulse | Flag a mistake

30 **In a balanced chemical equation, the number of atoms of each element is**

A Zero on both sides

B The same on both sides

C Greater on the reactant side

D Greater on the product side

Understand It with Pulse | Flag a mistake

31 **The molar mass of sodium chloride, using atomic masses 23 for sodium and 35.5 for chlorine, in grams per mole, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

32 **A combustion reaction is normally**

A Nuclear

B Endothermic

C Exothermic

D At equilibrium only

Understand It with Pulse | Flag a mistake

33 **Bohr model electrons move in fixed paths called**

A Nuclei

B Orbitals in clouds

C Energy levels

D Ions

Understand It with Pulse | Flag a mistake

34 **Water is bent in shape because the oxygen atom has**

A Two lone pairs that repel bonding pairs

B Four bonds

C An ionic bond

D No lone pairs

Understand It with Pulse | Flag a mistake

35 **Two moles of a substance contain about**

A 3.01×10^{23}

B 6.02×10^{23}

C 1.20×10^{24}

D 1.20×10^{23}

Understand It with Pulse | Flag a mistake

36 **A reaction with a negative enthalpy change and an increase in entropy is favoured at**

A High temperatures only

B Low temperatures only

C No temperature

D All temperatures

Understand It with Pulse | Flag a mistake

37 **Potassium has atomic number 19 A potassium atom has how many valence electrons**

ANSWER _____

Understand It with Pulse | Flag a mistake

38 **Hydrogen bonding occurs when hydrogen is bonded to a highly electronegative atom such as**

A Carbon only

B Nitrogen, oxygen, or fluorine

C Helium

D Sodium

Understand It with Pulse | Flag a mistake

39 **Charles law states that at constant pressure, as the temperature of a gas in kelvin increases, its volume**

A Increases

B Decreases

C Becomes zero

D Stays the same

Understand It with Pulse | Flag a mistake

40 **A base in water increases the concentration of**

A Protons only

B Hydroxide ions

C Electrons

D Hydrogen ions

Understand It with Pulse | Flag a mistake

41 **An anion is an ion with a**

A Zero charge

B Positive charge from losing electrons

C Negative charge from gaining electrons

D Positive charge from gaining protons

Understand It with Pulse | Flag a mistake

42 **The formula of calcium oxide is**

A Ca_2O_2

B CaO_2

C Ca_2O

D CaO

Understand It with Pulse | Flag a mistake

43 **In a solution, the substance dissolved is called the**

A Solute

B Suspension

C Colloid

D Solvent

Understand It with Pulse | Flag a mistake

44 **Nuclear reactions release far more energy per atom than chemical reactions because they involve changes in the**

A Temperature only

B Bonds only

C Nucleus

D Electron shells only

Understand It with Pulse | Flag a mistake

45 **The ionic charge of oxygen, group 16, is normally**

A 2+

B 2-

C 1+

D 1-

Understand It with Pulse | Flag a mistake

46 **Oxidation is defined as**

A Gain of protons

B Loss of neutrons

C Gain of electrons

D Loss of electrons

Understand It with Pulse | Flag a mistake

47 **When a gas is heated at constant pressure, its volume increases because its molecules**

A Move faster and take up more space

B Stop colliding

C Condense

D Shrink

Understand It with Pulse | Flag a mistake

48 **A sample has mass 64 g and a half life of 5 days After 15 days, the mass remaining, in grams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

49 **The elements in group 1 are called the**

A Alkali metals

B Halogens

C Transition metals

D Noble gases

Understand It with Pulse | Flag a mistake

50 **The oxidation number of oxygen in most compounds is**

A 2+

B 2-

C 1+

D 0

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	6	**18.**	4	**35.**	C
2.	A	**19.**	B	**36.**	D
3.	2	**20.**	5	**37.**	1
4.	C	**21.**	B	**38.**	B
5.	14	**22.**	B	**39.**	A
6.	D	**23.**	10	**40.**	B
7.	2	**24.**	B	**41.**	C
8.	D	**25.**	C	**42.**	D
9.	D	**26.**	C	**43.**	A
10.	A	**27.**	3	**44.**	C
11.	0.4	**28.**	A	**45.**	B
12.	A	**29.**	A	**46.**	D
13.	D	**30.**	B	**47.**	A
14.	C	**31.**	58.5	**48.**	8
15.	1	**32.**	C	**49.**	A
16.	C	**33.**	C	**50.**	B
17.	D	**34.**	A		

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