ONTARIO CHEMISTRY, GRADE 11, UNIVERSITY PREPARATION (SCH3U) · 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 has 6 protons and 6 neutrons. What is its mass number?**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **In the balanced equation $N_2 + 3H_2 \rightarrow 2NH_3$, the coefficient in front of NH_3 is**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **The molar mass of water, H_2O, is about**

- A 10 grams per mole
- B 18 grams per mole
- C 16 grams per mole
- D 20 grams per mole

Understand It with Pulse | Flag a mistake

4 **In salt water, the solute is**

- A water
- B both water and salt
- C salt
- D neither

Understand It with Pulse | Flag a mistake

5 **An atom has 20 protons and 20 neutrons. What is its mass number?**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **In the balanced equation $2Al + 3Cl_2 \rightarrow 2AlCl_3$, the coefficient in front of Cl_2 is**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **What is the amount in moles in 88 grams of a substance with molar mass 44 grams per mole?**

ANSWER _____

Understand It with Pulse | Flag a mistake

8 **Solubility is usually defined as**

A the rate of dissolving

B the mass of solvent only

C the maximum mass of solute that dissolves in a given amount of solvent at a given temperature

D the temperature of a solution

Understand It with Pulse | Flag a mistake

9 **An ion has 17 protons and 18 electrons. Its charge is**

A 1-

B 1+

C 2+

D 2-

Understand It with Pulse | Flag a mistake

10 **A decomposition reaction is one in which**

A two reactants combine

B an element replaces another in a compound

C two solutions form a precipitate

D one compound breaks into simpler substances

Understand It with Pulse | Flag a mistake

11 **What is the amount in moles in 90 grams of a substance with molar mass 18 grams per mole?**

ANSWER _____

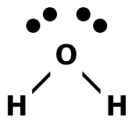
Understand It with Pulse | Flag a mistake

12 **Stirring a mixture increases the rate of dissolving mainly by**

- **A** increasing solubility
- **B** bringing fresh solvent into contact with solute
- **C** changing the solute
- **D** cooling the mixture

Understand It with Pulse | Flag a mistake

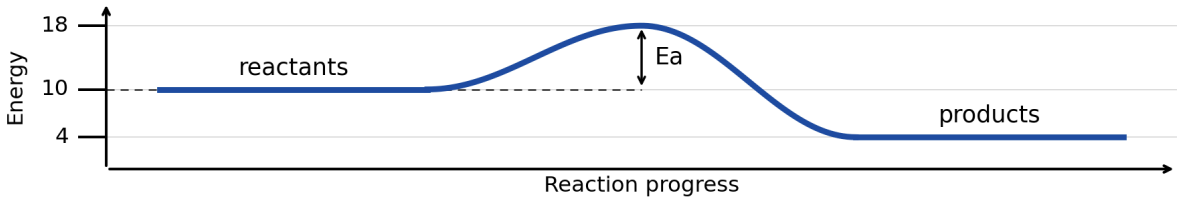
13 **The diagram shows a water molecule. How many lone pairs are shown on the central oxygen atom?**



- **A** 0
- **B** 1
- **C** 3
- **D** 2

Understand It with Pulse | Flag a mistake

14 **The energy diagram shows reactants at 10, a peak at 18, and products at 4. What is the activation energy?**



ANSWER

Understand It with Pulse | Flag a mistake

15 **What is the mass in grams of 2 moles of a substance with molar mass 58.5 grams per mole?**

ANSWER

Understand It with Pulse | Flag a mistake

16 **What is the concentration in moles per litre of a solution containing 2 moles of solute in 1 litres of solution?**

ANSWER

Understand It with Pulse | Flag a mistake

17 **Down a group, atomic radius generally**

A decreases

B stays the same

C increases

D becomes zero

Understand It with Pulse | Flag a mistake

18 **An acid reacts with a metal carbonate to produce a salt, water, and**

A carbon dioxide gas

B hydrogen gas

C oxygen gas

D nitrogen gas

Understand It with Pulse | Flag a mistake

19 **In the reaction 2 H_2 plus O_2 gives 2 H_2O, how many moles of water form from 2 moles of hydrogen, with excess oxygen?**

ANSWER _____

Understand It with Pulse | Flag a mistake

20 **A solution has concentration 2 moles per litre and volume 0.5 litres. How many moles of solute does it contain?**

ANSWER _____

Understand It with Pulse | Flag a mistake

21 **Isotopes of an element have the same number of protons but different numbers of**

A neutrons

B electrons

C protons

D atoms

Understand It with Pulse | Flag a mistake

22 **A reaction in which products have more energy than reactants is**

A exothermic

B neutralization only

C decomposition only

D endothermic

Understand It with Pulse | Flag a mistake

23 **In the reaction 2 H_2 plus O_2 gives 2 H_2O, how many moles of water form from 1 moles of oxygen, with excess hydrogen?**

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **Concentration in moles per litre equals**

A moles times volume

B volume divided by moles

C mass divided by volume only

D moles divided by volume in litres

Understand It with Pulse | Flag a mistake

25 **Water is a polar molecule mainly because**

A it has ionic bonds only

B oxygen attracts shared electrons more strongly than hydrogen, and the molecule is bent

C it has no lone pairs

D hydrogen is more electronegative than oxygen

Understand It with Pulse | Flag a mistake

26 **A precipitate is**

- A a gas produced in a reaction
- B a catalyst
- C a colour change only
- D an insoluble solid formed in a solution reaction

Understand It with Pulse | Flag a mistake

27 **In the reaction N_2 plus 3 H_2 gives 2 NH_3, how many moles of ammonia form from 1 moles of nitrogen, with excess hydrogen?**

ANSWER _____

Understand It with Pulse | Flag a mistake

28 **A 1 moles per litre solution of volume 0.2 litres is diluted to 1 litres. What is the new concentration in moles per litre?**

ANSWER _____

Understand It with Pulse | Flag a mistake

29 **Which substance would have the highest boiling point, based on intermolecular forces?**

A A molecule with strong hydrogen bonding

B A small nonpolar molecule

C A noble gas atom

D A small polar molecule with weak forces

Understand It with Pulse | Flag a mistake

30 **Calcium carbonate heated strongly decomposes into calcium oxide and**

A hydrogen

B oxygen

C carbon dioxide

D water

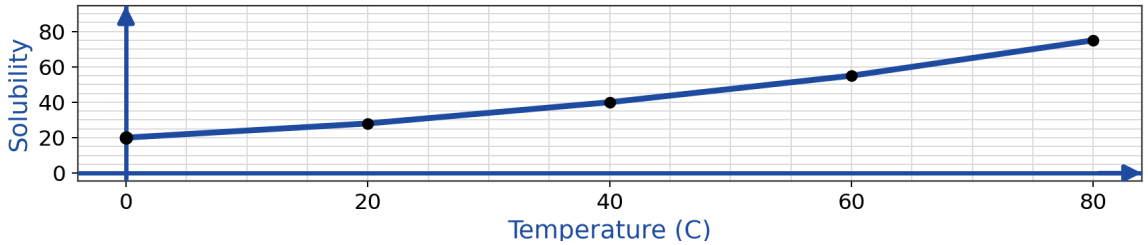
Understand It with Pulse | Flag a mistake

31 **In the reaction 2 Mg plus O_2 gives 2 MgO, how many moles of magnesium oxide form from 4 moles of magnesium, with excess oxygen?**

ANSWER

Understand It with Pulse | Flag a mistake

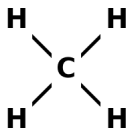
32 **The graph shows solubility of a second salt against temperature. What is the solubility at 40 degrees Celsius?**



ANSWER

Understand It with Pulse | Flag a mistake

33 **The diagram shows a methane molecule. How many lone pairs are shown on the central carbon atom?**



- **A** 1
- **B** 2
- **C** 0
- **D** 4

Understand It with Pulse | Flag a mistake

34 **Sulfuric acid reacts with potassium hydroxide to form potassium sulfate and**

- **A** water
- **B** hydrogen
- **C** oxygen
- **D** carbon dioxide

Understand It with Pulse | Flag a mistake

35 **A reaction has an actual yield of 40 grams and a theoretical yield of 50 grams. What is the percent yield?**

ANSWER _____

Understand It with Pulse | Flag a mistake

36 **Sugar dissolved in water is a nonelectrolyte because it**

A does not dissolve

B forms ions only

C dissolves as neutral molecules, not ions

D is a solid

Understand It with Pulse | Flag a mistake

37 **The shape of a molecule with four bonding pairs and no lone pairs on the central atom is**

- A bent
- B tetrahedral
- C linear
- D trigonal pyramidal

Understand It with Pulse | Flag a mistake

38 **Photosynthesis is an example of a reaction that is**

- A exothermic only
- B not a chemical reaction
- C a physical change only
- D endothermic, because it absorbs light energy

Understand It with Pulse | Flag a mistake

39 **An empirical formula gives**

A the exact number of atoms in a molecule

B the simplest whole number ratio of atoms in a compound

C the structural arrangement only

D the mass of a molecule

Understand It with Pulse | Flag a mistake

40 **A strong acid**

A does not dissociate

B dissociates almost completely in water

C is always concentrated

D is always dilute

Understand It with Pulse | Flag a mistake

41 **Carbon dioxide is nonpolar overall because**

A its polar bonds are arranged symmetrically and their dipoles cancel

B its bonds are nonpolar

C it has no bonds

D it is ionic

Understand It with Pulse | Flag a mistake

42 **In a single displacement reaction, a more reactive element**

A is always a product

B never reacts

C displaces a less reactive element from its compound

D forms a precipitate only

Understand It with Pulse | Flag a mistake

43 **At standard temperature and pressure, what volume in litres does 2 moles of an ideal gas occupy, using 22.4 litres per mole?**

ANSWER _____

Understand It with Pulse | Flag a mistake

44 **Which solution would conduct electricity best?**

A Pure water

B Salt solution

C Sugar solution

D Oil

Understand It with Pulse | Flag a mistake

45 **The first energy level of an atom can hold at most**

- A 8 electrons
- B 18 electrons
- C 1 electron
- D 2 electrons

Understand It with Pulse | Flag a mistake

46 **A solution with pH 12 is**

- A strongly acidic
- B strongly basic
- C neutral
- D weakly acidic

Understand It with Pulse | Flag a mistake

47 **Which amount contains the most particles?**

A 1 mole of carbon

B 2 moles of hydrogen gas

C 0.5 moles of oxygen gas

D 1 mole of water

Understand It with Pulse | Flag a mistake

48 **A dilute solution has**

A a small amount of solute per volume

B a large amount of solute per volume

C no solvent

D only solute

Understand It with Pulse | Flag a mistake

49 **Elements in the same group have similar chemical properties because they have**

- A the same atomic mass
- B the same number of neutrons
- C the same number of valence electrons
- D the same density

Understand It with Pulse | Flag a mistake

50 **When an acid and a base react completely, the resulting solution is closest to**

- A neutral
- B strongly acidic
- C strongly basic
- D always coloured

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	12	**18.**	A	**35.**	80
2.	2	**19.**	2	**36.**	C
3.	B	**20.**	1	**37.**	B
4.	C	**21.**	A	**38.**	D
5.	40	**22.**	D	**39.**	B
6.	3	**23.**	2	**40.**	B
7.	2	**24.**	D	**41.**	A
8.	C	**25.**	B	**42.**	C
9.	A	**26.**	D	**43.**	44.8
10.	D	**27.**	2	**44.**	B
11.	5	**28.**	0.2	**45.**	D
12.	B	**29.**	A	**46.**	B
13.	D	**30.**	C	**47.**	B
14.	8	**31.**	4	**48.**	A
15.	117	**32.**	40	**49.**	C
16.	2	**33.**	C	**50.**	A
17.	C	**34.**	A		

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