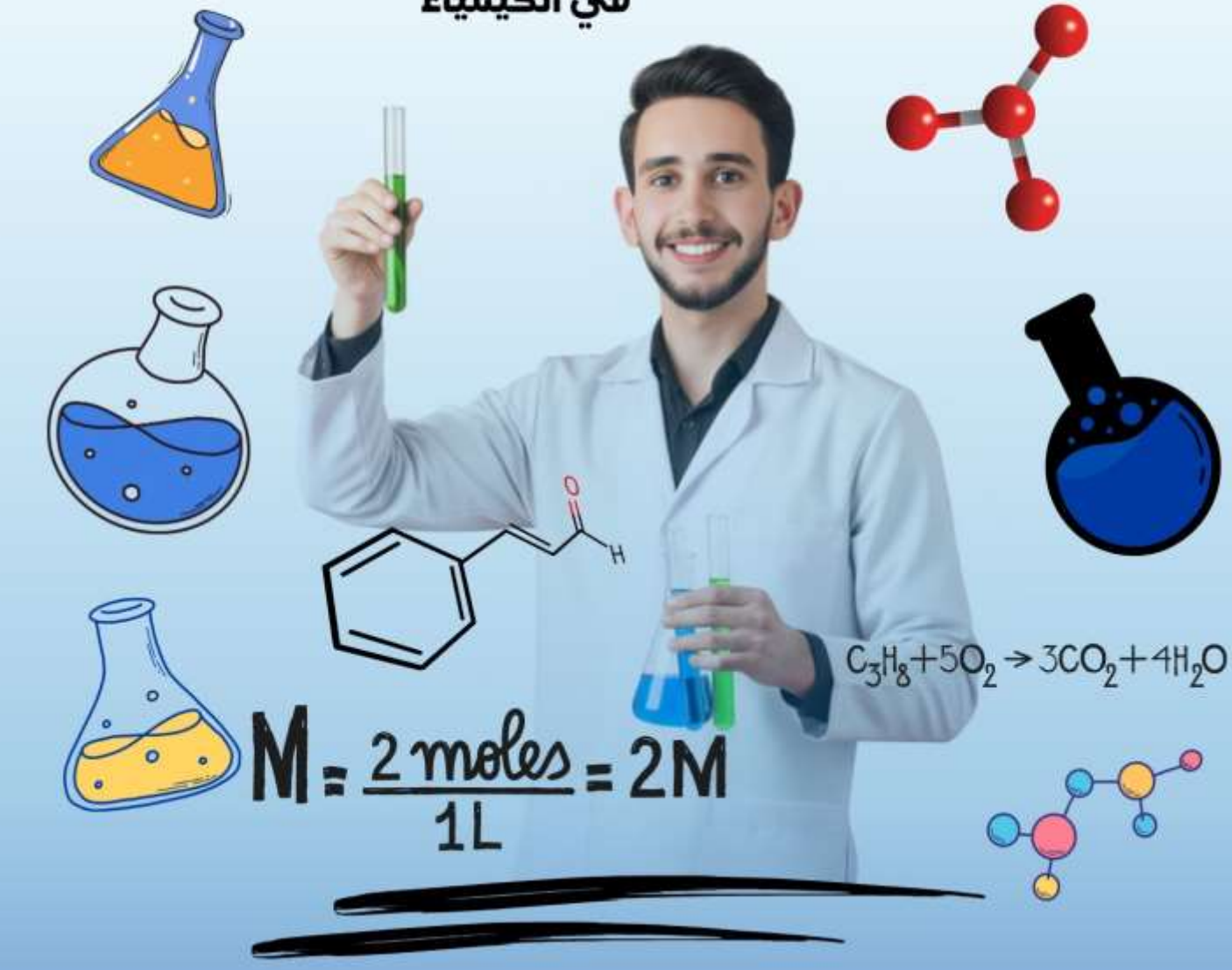
الجُـــود

في الكيمياء



CHEMISTRY 103

بنك اسئلة يحتوي على 1000 سؤال

University

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Experiment. Discover. Repeat.

"Chemistry never ends"

CHAPTER ONE

Atoms, Molecules and Ions

مع IQ الطلاب بأمان

الفُل يعني وسيم

الطحن يااااا وسيم

علامتك مضمونة مع وسيم ولد عبدربه

غير العلامة الكاملة ما بنقبل

الكيمياء لعبة، واحنا قد اللعب

بنك الاسئلة جهتك الأخيرة نحو الفل

سهل تجيب العلامة العالية

بس صعب تجيب العلامة الكاملة وانت مش من طلاب ولد عبدربه

1 Question

The elements in a column of the periodic table are known as :

A metalloids B a period C noble gases D a group

2 Question

Which of these materials are usually poor conductors of heat and electricity :

A metals B metalloids C nonmetals D alkaline earth metals

3 Question

Which of these elements is most likely to be a good conductor of electricity :

A N B S C He D Fe

4 Question

The scientist who determined the magnitude of the electric charge of the electron, Was :

A John Dalton B Robert Millikan C J. J. Thomson D Henry Moseley

5 Question

Which of these scientists developed the nuclear model of the atom :

A John Dalton B Robert Millikan C J. J. Thomson D Ernest Rutherford

6 Question

Atoms of the same element with different mass numbers are called :

A ions B neutrons C allotropes D isotopes

7 Question

How many neutrons are there in an atom of lead whose mass number is 208 :

A 82 B 126 C 208 D 290

8 Question

An atom of the isotope sulfur-31 consists of how many protons, neutrons, and electrons : (p = proton, n = neutron, e = electron)

A 15 p, 16 n, 15 e B 16 p, 15 n, 16 e C 16 p, 31 n, 16 e D 32 p, 31 n, 32 e

9 Question

Give the number of protons (p), electrons (e), and neutrons (n) in one atom of chlorine-37 :

A) 37 p, 37 e, 17 n B) 17 p, 17 e, 37 n C) 17 p, 17 e, 20 n D) 37 p, 17 e, 20 n

10 Question

Which one of these species is an ion :

A) B^{3+} B) NaCl C) He D) none of these

11 Question

Two isotopes of an element differ only in their :

A) symbol B) atomic number C) atomic mass D) number of protons

12 Question

A magnesium ion, Mg^{2+}, has :

A) 12 protons and 13 electrons B) 24 protons and 26 electrons C) 12 protons and 10 electrons D) 24 proton and 22 electron

13 Question

An aluminum ion, Al^{3+}, has :

A) 13 protons and 13 electrons B) 27 protons and 24 electrons C) 16 protons and 13 electrons D) 13 proton and 10 electron

14 Question

An oxide ion, O^{2-}, has:

A) 8 protons and 10 electrons B) 10 protons and 8 electrons C) 8 protons and 9 electrons D) 8 proton and 7 electron

15 Question

A sulfide ion, S^{2-} , has :

A) 16 protons and 16 electrons B) 32 protons and 16 electrons C) 16 protons and 14 electrons D) 16 proton and 18 electron

16 Question

How many protons and electrons are present in one Br^- ion :

A) 35 p, 35 e B) 80 p, 81 e C) 35 p, 34 e D) 35 p, 36 e

17 Question

Which of these pairs of elements would be most likely to form an ionic Compound :

A) P and Br B) Cu and K C) C and O D) O and Zn

18 Question

Which pair of elements would be most likely to form an ionic compound :

A) P and Br B) Zn and K C) F and Al D) C and S

19 Question

What is the formula for the ionic compound formed by calcium ions and nitrate ions:

A) Ca_3N_2 B) $Ca(NO_3)_2$ C) Ca_2NO_3 D) $CaNO_3$

20 Question

What is the formula for the ionic compound formed by calcium and selenium :

A) CaSe B) Ca_2Se C) $CaSe_2$ D) Ca_3Se

21 Question

What is the formula for the ionic compound formed by magnesium and iodine :

A) MgI B) Mg_2I C) MgI_2 D) MgI_3

22 Question

What is the formula for the binary compound formed by potassium and Nitrogen :

A) KN B) K_2N C) NK_2 D) K_3N

23 Question

Which is the correct formula for copper(II) phosphate :

A) Cu_2PO_4 B) $Cu_3(PO_4)_2$ C) Cu_2PO_3 D) $Cu(PO_4)_2$

24 Question

The formula for calcium phosphate is :

A) $CaPO_4$ B) $Ca_3(PO_4)_2$ C) $Ca_2(PO_4)_3$ D) Ca_3P_2

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25 Question

The formula for magnesium sulfate is :

A) MnS B) MgS C) $MnSO_3$ D) $MgSO_4$

26 Question

The formula for sodium sulfide is :

A) NaS B) K_2S C) NaS_2 D) Na_2S

27 Question

The correct name for $Ba(OH)_2$ is :

A) barium hydrogen oxide B) boron hydroxide C) barium hydrate D) barium hydroxide

28 Question

Which is the correct formula for lead(IV) chloride :

A) Pb_4Cl B) $PbCl_2$ C) $PbCl_3$ D) $PbCl_4$

29 Question

The chemical formula for iron(II) nitrate is :

A) $Fe_2(NO_3)_3$ B) $Ir(NO_2)_2$ C) Fe_2N_3 D) $Fe(NO_3)_2$

30 Question

The most abundant isotope of uranium is 238U, while all naturally occurring fluorine is ^{19}F. A molecule of UF_6 formed from these isotopes contains:

A) 146 neutrons B) 152 neutrons C) 200 neutrons D) 206 neutrons

31 Question

A commonly occurring isotope of tin is tin-118, while most oxygen occurs in nature as oxygen-16. A molecule of tin(IV) oxide formed from these isotopes contains :

A) 66 neutrons B) 84 neutrons C) 76 neutrons D) 58 neutrons

32 Question

Which of these elements is chemically similar to magnesium :

A) sulfur B) calcium C) iron D) nickel

33 Question

Which of these elements is chemically similar to oxygen :

A sulfur B calcium C iron D nickel

34 Question

Which of these elements is chemically similar to potassium :

A sulfur B arsenic C iron D cesium

35 Question

The mass number of an atom is equal to :

A Number of electrons only B Number of neutrons only C Number of protons + neutrons D Number of protons + electrons

36 Question

An ion with 17 protons and 18 electrons has a charge of :

A +1 B -1 C +17 D -17

37 Question

Which species contains the greatest number of electrons :

A Na^+ B Mg^{2+} C F^- D Ne

38 Question

The atomic number represents the number of :

A Neutrons B Electrons only C Protons D Protons + neutrons

39 Question

Which pair represents isotopes :

A ^{12}C and ^{14}C B Na and Na^+ C O and O^{2-} D H and He

40 Question

A neutral atom has 26 protons. The number of electrons is :

A 13 B 26 C 52 D 30

41 Question

Which particle contributes least to atomic mass :

(A) Proton (B) Electron (C) Neutron (D) Nucleus

42 Question

The symbol $^{35}Cl^-$ indicates :

(A) 17 neutrons (B) 18 protons (C) 17 electrons (D) 18 electrons

43 Question

Which compound contains both ionic and covalent bonds :

(A) NaCl (B) CO_2 (C) NH_4Cl (D) MgO

44 Question

The formula of aluminum oxide is :

(A) AlO (B) Al_2O_3 (C) Al_3O_2 (D) AlO_2

45 Question

Which of the following is a molecular compound :

(A) KBr (B) $MgCl_2$ (C) SO_2 (D) Na_2O

46 Question

Which formula is correct for calcium phosphate :

(A) $CaPO_4$ (B) Ca_2PO_4 (C) $Ca_3(PO_4)_2$ (D) Ca_3PO_4

47 Question

The number of neutrons in ^{56}Fe is :

(A) 26 (B) 30 (C) 56 (D) 82

48 Question

Which ion has the same electron configuration as Ne :

(A) Na^+ (B) Mg^{2+} (C) F^- (D) All of these

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49 Question

Which element is expected to form a +2 ion :

A) Na B) Al C) Mg D) Cl

50 Question

Which species is isoelectronic with Ar :

A) Cl^- B) K^+ C) Ca^{2+} D) All of these

51 Question

The charge on the sulfate ion is :

A) -1 B) -2 C) +2 D) +1

52 Question

Who discovered the nucleus through the gold foil experiment :

A) Dalton B) Thomson C) Rutherford D) Chadwick

53 Question

Which subatomic particle was discovered by Chadwick :

A) Electron B) Proton C) Neutron D) Positron

54 Question

Which formula is incorrect :

A) $MgCl_2$ B) Al_2S_3 C) Na_2O D) Ca_2Cl

55 Question

Which atom has the greatest number of neutrons :

A) ^{12}C B) ^{14}N C) ^{16}O D) ^{23}Na

56 Question

Which of the following is a polyatomic ion :

A) Na^+ B) Mg^{2+} C) NH_4^+ D) Cl^-

57 Question

Which species contains equal numbers of protons and neutrons :

A) ^{12}C B) ^{14}C C) ^{23}Na D) ^{35}Cl

58 Question

A cation is formed when :

A) Electrons are gained B) Protons are lost C) Electrons are lost D) Neutrons are lost

59 Question

The formula for ammonium carbonate is :

A) NH_4CO_3 B) $(NH_4)_2CO_3$ C) $NH_4(CO_3)_2$ D) $NH_{42}CO_3$

60 Question

Which compound contains the greatest number of atoms per formula unit :

A) NaCl B) $CaCO_3$ C) $Al_2(SO_4)_3$ D) MgO

61 Question

Which ion has a 3+ charge :

A) Oxide B) Nitride C) Aluminum D) Sodium

62 Question

Which element has atomic number 15 :

A) P B) S C) Si D) Cl

63 Question

The total number of atoms in one molecule of $C_6H_{12}O_6$ is :

A) 6 B) 12 C) 18 D) 24

64 Question

Which formula corresponds to magnesium nitrate :

A) $MgNO_3$ B) Mg_2NO_3 C) $Mg(NO_3)_2$ D) $Mg_2(NO_3)_3$

65 Question

The isotope ^{238}U contains :

A) 92 neutrons B) 146 neutrons C) 238 neutrons D) 330 neutrons

66 Question

Which pair forms an ionic bond most readily :

A) Na and Cl B) C and H C) O and O D) N and H

67 Question

Which compound has the empirical formula CH_2O :

A) $C_2H_4O_2$ B) $C_6H_{12}O_6$ C) Both A and B D) Neither A nor B

68 Question

The formula for copper(I) oxide is :

A) CuO B) Cu_2O C) Cu_2O_3 D) CuO_2

69 Question

Which atom is most likely to gain electrons :

A) Na B) Mg C) Cl D) Al

70 Question

Which formula is correct for iron(II) sulfate :

A) $FeSO_4$ B) Fe_2SO_4 C) $Fe(SO_4)_2$ D) $Fe_2(SO_4)_3$

71 Question

Which element is a metalloid :

A) Na B) Cl C) Si D) Mg

72 Question

The number of protons in K^+ is :

A) 18 B) 19 C) 20 D) 39

73 Question

The formula for barium hydroxide is :

A) BaOH B) $Ba(OH)_2$ C) Ba_2OH D) $BaOH_2$

74 Question

Which element has the highest atomic number :

A) O B) Ne C) Na D) Mg

75 Question

The charge of phosphate ion is :

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

76 Question

The formula for lead(IV) oxide is :

A) PbO B) Pb_2O C) PbO_2 D) Pb_2O_4

77 Question

Which compound contains only covalent bonds :

A) NH_3 B) NaCl C) KBr D) CaO

78 Question

The total number of electrons in SO_4^{2-} is :

A) 30 B) 32 C) 48 D) 50

79 Question

Which ion is formed by sulfur most commonly :

A) S^+ B) S^{2+} C) S^{2-} D) S^{3+}

80 Question

Which species has the highest negative charge :

A) NO_3^- B) SO_4^{2-} C) PO_4^{3-} D) OH^-

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81 Question

The formula of chromium(III) oxide is :

(A) CrO (B) Cr_2O_3 (C) CrO_2 (D) Cr_3O_2

82 Question

Which element is most likely to form covalent compounds :

(A) Na (B) Mg (C) Cl (D) Ca

83 Question

Which formula is correct for ammonium sulfate :

(A) NH_4SO_4 (B) $(NH_4)_2SO_4$ (C) $NH_4(SO_4)_2$ (D) $NH_{42}SO_4$

84 Question

The element with atomic number 8 belongs to :

(A) Halogens (B) Noble gases (C) Chalcogens (D) Alkali metals

85 Question

Which compound contains three elements :

(A) H_2O (B) NaCl (C) HNO_3 (D) O_2

86 Question

The formula unit concept is used mainly for :

(A) Molecular compounds (B) Ionic compounds (C) Noble gases (D) Metals only

87 Question

Which ion contains 10 electrons :

(A) Na^+ (B) Mg^{2+} (C) F^- (D) All of these

88 Question

Which species is neutral :

(A) Cl^- (B) Na^+ (C) Ne (D) Ca^{2+}

89 Question

The ionization of sodium forms :

A) Na^{2+} B) Na^{-} C) Na^{+} D) Na^{2-}

90 Question

Which pair represents isobars :

A) ^{12}C and ^{14}C B) ^{40}Ar and ^{40}Ca C) Na and Na^{+} D) H and D

91 Question

Which species has the largest number of neutrons :

A) ^{19}F B) ^{23}Na C) ^{35}Cl D) ^{40}Ca

92 Question

The empirical formula of benzene (C_6H_6) is :

A) CH B) CH_2 C) C_2H_2 D) C_6H_6

93 Question

Which bond involves electron transfer :

A) Covalent bond B) Metallic bond C) Ionic bond D) Hydrogen bond

94 Question

The formula for calcium hydroxide is :

A) CaOH B) $Ca(OH)_2$ C) Ca_2OH D) $CaOH_2$

95 Question

Which element forms a -1 ion most easily :

A) Na B) Mg C) Cl D) Al

96 Question

The number of electrons in Al^{3+} is :

A) 10 B) 13 C) 16 D) 27

97 Question

Which atom has 20 protons :

A) K B) Ca C) Sc D) Ar

98 Question

The formula of potassium sulfide is :

A) KS B) K_2S C) K_2S_2 D) KS_2

99 Question

Which of the following is NOT a polyatomic ion :

A) OH^- B) SO_4^{2-} C) NH_4^+ D) Cl^-

100 Question

The formula for zinc nitrate is :

A) $ZnNO_3$ B) Zn_2NO_3 C) $Zn(NO_3)_2$ D) $Zn_2(NO_3)_3$

101 Question

Which species contains exactly 18 electrons :

A) Ar B) Cl^- C) K^+ D) All of these

102 Question

The total number of electrons in PO_4^{3-} is :

A) 40 B) 47 C) 50 D) 52

103 Question

Which ion has the same number of electrons as S^{2-} :

A) Cl^- B) K^+ C) Ca^{2+} D) All of these

104 Question

The formula for iron(III) phosphate is :

A) $FePO_4$ B) $Fe_2(PO_4)_3$ C) Fe_3PO_4 D) $Fe_3(PO_4)_2$

105 Question

Which pair is NOT isoelectronic :

A) O^{2-} and Ne
B) Mg^{2+} and Ne
C) Na^{+} and F^{-}
D) Cl^{-} and Na^{+}

---

106 Question

Which formula is incorrect according to ionic charges :

A) Na_2S
B) Mg_3N_2
C) $AlCl_2$
D) CaF_2

---

107 Question

Which element is expected to form a 2– ion :

A) Sodium
B) Oxygen
C) Aluminum
D) Potassium

---

108 Question

Which compound contains the greatest number of oxygen atoms per formula unit :

A) Na_2CO_3
B) $Ca(NO_3)_2$
C) $Al_2(SO_4)_3$
D) $Mg(OH)_2$

---

109 Question

Which species contains exactly 28 electrons :

A) Ni^{2+}
B) Fe^{2+}
C) Cu^{+}
D) Zn^{2+}

---

110 Question

The number of neutrons in ^{65}Zn is :

A) 30
B) 35
C) 65
D) 95

---

111 Question

Which pair forms the most ionic bond :

A) H and Cl
B) Na and F
C) C and O
D) N and H

---

112 Question

The empirical formula of glucose is :

A) CH_2O
B) $C_6H_{12}O_6$
C) $C_2H_4O_2$
D) CHO

113 Question

Which ion has the largest positive charge :

A) Na^+ B) Mg^{2+} C) Al^{3+} D) Ca^{2+}

114 Question

The correct formula for cobalt(III) nitrate is :

A) $CoNO_3$ B) $Co(NO_3)_2$ C) $Co(NO_3)_3$ D) $Co_3(NO_3)_2$

115 Question

Which species has the greatest number of total particles (protons + neutrons + electrons) :

A) $^{23}Na^+$ B) $^{24}Mg^{2+}$ C) $^{35}Cl^-$ D) $^{40}Ca^{2+}$

116 Question

The charge on the nitride ion is :

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

117 Question

Which formula is correct for tin(IV) chloride :

A) $SnCl_2$ B) Sn_2Cl_4 C) $SnCl_4$ D) Sn_4Cl_2

118 Question

Which particle determines the chemical behavior of an element most directly :

A) Proton B) Neutron C) Valence electron D) Nucleus

119 Question

The molecular formula of a compound is $C_4H_8O_2$. The empirical formula is :

A) CH_2O B) C_2H_4O C) $C_4H_8O_2$ D) C_2H_2O

120 Question

Which compound contains exactly five atoms per molecule :

A) NH_3 B) CH_4 C) H_2O_2 D) CO_2

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121 Question

The total number of electrons in Cr^{3+} is :

A) 21 B) 24 C) 27 D) 52

---

122 Question

Which of the following is NOT a binary compound :

A) MgO B) CO_2 C) Na_2SO_4 D) PCl_3

---

123 Question

The formula for manganese(VII) oxide is :

A) MnO B) Mn_2O_3 C) MnO_2 D) Mn_2O_7

---

124 Question

Which atom has the greatest mass :

A) ^{35}Cl B) ^{37}Cl C) ^{39}K D) ^{40}Ca

---

125 Question

Which pair has identical numbers of neutrons :

A) ^{14}C and ^{15}N B) ^{23}Na and ^{24}Mg C) ^{31}P and ^{32}S D) ^{40}Ca and ^{39}K

"قاتل لحلمك، وماقيمة الحلم ان كان سهلا ميسرًا..."

10	9	8	7	6	5	4	3	2	1
A	C	B	B	D	D	A	D	C	D
20	19	18	17	16	15	14	13	12	11
A	B	C	D	D	D	A	D	C	C
30	29	28	27	26	25	24	23	22	21
D	D	D	D	D	D	B	B	D	C
40	39	38	37	36	35	34	33	32	31
B	A	C	C	B	C	D	A	B	B
50	49	48	47	46	45	44	43	42	41
D	C	D	B	C	C	B	C	D	B
60	59	58	57	56	55	54	53	52	51
C	B	C	A	C	D	D	C	C	B
70	69	68	67	66	65	64	63	62	61
A	C	B	C	A	B	C	D	A	C
80	79	78	77	76	75	74	73	72	71
C	C	D	A	C	C	D	B	B	C
90	89	88	87	86	85	84	83	82	81
B	C	C	D	B	C	C	B	C	B
100	99	98	97	96	95	94	93	92	91
C	D	B	B	A	C	B	C	A	D
110	109	108	107	106	105	104	103	102	101
B	A	C	B	C	D	A	D	C	D
120	119	118	117	116	115	114	113	112	111
B	B	C	C	C	D	C	C	A	B

125	124	123	122	121
A	D	D	C	A

CHAPTER TWO

Mass Relationships in Chemical Reactions

مع IQ الطلاب بأمان

الفُل يعني وسيم

الطحن يااااا وسيم

علامتك مضمونة مع وسيم ولد عبدربه

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بس صعب تجيب العلامة الكاملة وانت مش من طلاب ولد عبدربه

126 Question

What is the average mass, in grams, of one atom of iron :

(A) 6.02×10^{23} g (B) 1.66×10^{-24} g (C) 9.28×10^{-23} g (D) 55.85 g

127 Question

What is the mass, in grams, of one arsenic atom :

(A) 5.48×10^{-23} g (B) 33.0 g (C) 74.9 g (D) 1.24×10^{-22} g

128 Question

What is the mass, in grams, of one copper atom :

(A) 1.055×10^{-22} g (B) 63.55 g (C) 1 amu (D) 1.66×10^{-24} g

129 Question

The mass of 1.21×10^{20} atoms of sulfur is :

(A) 3.88×10^{21} g (B) 2.00 mg (C) 32.06 g (D) 6.44 mg

130 Question

The mass of 1.63×10^{21} silicon atoms is :

(A) 2.71×10^{-23} g (B) 4.58×10^{22} g (C) 28.08 g (D) 7.60×10^{-2} g

131 Question

What is the mass of 7.80×10^{18} carbon atoms :

(A) 1.30×10^{-5} g (B) 6.43×10^{3} g (C) 7.80×10^{18} g (D) 1.56×10^{-4} g

132 Question

If 0.274 moles of a substance weighs 62.5 g, what is the molar mass of the substance, in units of g/mol :

(A) 2.28×10^{2} g/mol (B) 1.71×10^{1} g/mol (C) 4.38×10^{-3} g/mol (D) none of these

133 Question

Which of these quantities does not represent 1.00 mol of the indicated substance :

(A) 6.02×10^{23} C atoms (B) 26.0 g Fe (C) 12.01 g C (D) 65.4 g Zn

134 Question

One nanogram doesn't seem like a very large number. How many magnesium atoms are there in 1.00 ng of magnesium:

(A) 4.11×10^{-11} atoms (B) 2.48×10^{13} atoms (C) 6.83×10^{-35} atoms (D) 6.02×10^{14} atoms

135 Question

How many silicon atoms are there in 1.00 g of silicon :

(A) 1 atom (B) 0.0356 atoms (C) 2.57×10^{23} atoms (D) 2.14×10^{22} atoms

136 Question

How many atoms are in 5.54 g of F_2 :

(A) 6.02×10^{23} atoms (B) 0.146 atoms (C) 0.292 atoms (D) 1.76×10^{23} atoms

137 Question

How many atoms are in 4.39 g of CO_2 :

(A) 1.80×10^{23} atoms (B) 6.01×10^{22} atoms (C) 1.16×10^{26} atoms (D) 6.04×10^{24} atoms

138 Question

How many atoms are in 0.0728 g of PCl_3 :

(A) 1.28×10^{21} atoms (B) 4.38×10^{22} atoms (C) 4.39×10^{21} atoms (D) 3.19×10^{20} atoms

139 Question

Determine the number of moles of aluminum in 96.7 g of Al :

(A) 0.279 mol (B) 3.58 mol (C) 7.43 mol (D) 4.21 mol

140 Question

Calculate the number of moles of xenon in 12.0 g of xenon :

(A) 1.00 mol (B) 0.0457 mol (C) 0.183 mol (D) 0.0914 mol

141 Question

How many moles of CF_4 are there in 171 g of CF_4 :

(A) 0.51 mol (B) 1.94 mol (C) 4.07 mol (D) 88.0 mol

142 Question

How many moles of NH_3 are there in 77.5 g of NH_3 :

A) 0.220 mol B) 4.55 mol C) 14.0 mol D) none of these

143 Question

Calculate the number of moles of cesium in 50.0 g of cesium :

A) 0.376 mol B) 0.357 mol C) 2.66 mol D) 2.80 mol

144 Question

Which of the following samples contains the greatest number of atoms :

A) 100 g of Pb B) 2.0 mole of Ar C) 0.1 mole of Fe D) 5 g of He

145 Question

Calculate the molecular mass of potassium permanganate, $KMnO_4$:

A) 52 amu B) 70 amu C) 110 amu D) 158 amu

146 Question

Calculate the molecular mass of menthol, $C_{10}H_{20}O$:

A) 156 amu B) 140 amu C) 29 amu D) 146 amu

147 Question

What is the molar mass of acetaminophen, $C_8H_9NO_2$:

A) 43 g/mol B) 76 g/mol C) 151 g/mol D) 162 g/mol

148 Question

What is the molar mass of nicotine, $C_{10}H_{14}N_2$:

A) 134 g/mol B) 148 g/mol C) 158 g/mol D) 162 g/mol

149 Question

What is the mass of 0.0250 mol of P_2O_5 :

A) 35.5 g B) 5676 g C) 0.0250 g D) 3.55 g

150 Question

Calculate the mass of 3.00 moles of CF_2Cl_2 :

A) 3.00 g B) 174 g C) 363 g D) 40.3 g

151 Question

The molecular formula of aspirin is $C_9H_8O_4$. How many aspirin molecules are present in one 500-milligram tablet :

A) 2.77 molecules B) 2.77×10^{-3} molecules C) 1.67×10^{24} molecules D) 1.67×10^{21} molecules

152 Question

Formaldehyde has the formula CH_2O. How many molecules are there in 0.11 g of formaldehyde :

A) 6.1×10^{-27} B) 3.7×10^{-3} C) 4 D) 2.2×10^{21}

153 Question

How many molecules are there in 8.0 g of ozone, O_3 :

A) 3 molecules B) 3.6×10^{24} molecules C) 1.0×10^{23} molecules D) 3.0×10^{23} molecules

154 Question

How many moles of HCl are represented by 1.0×10^{19} HCl molecules :

A) 1.7×10^{-5} mol B) 1.5×10^{-3} mol C) 1.0×10^{19} mol D) 36.5 mol

155 Question

How many sodium atoms are there in 6.0 g of Na_3N :

A) 3.6×10^{24} atoms B) 4.6×10^{22} atoms C) 1.3×10^{23} atoms D) 0.217 atoms

156 Question

How many moles of oxygen atoms are there in 10 moles of $KClO_3$:

A) 3 mol B) 3.3 mol C) 10 mol D) 30 mol

157 Question

How many sulfur atoms are there in 21.0 g of Al_2S_3 :

A) 8.42×10^{22} atoms B) 2.53×10^{23} atoms C) 2.14×10^{23} atoms D) 6.02×10^{23} atoms

158 Question

How many sulfur atoms are present in 25.6 g of $Al_2(S_2O_3)_3$:

A) 0.393 B) 6 C) 3.95×10^{22} D) 2.37×10^{23}

159 Question

How many fluorine atoms are there in 65 g of CF_4 :

A) 0.74 atoms B) 3.0 atoms C) 4.5×10^{23} atoms D) 1.8×10^{24} atoms

160 Question

How many moles of O atoms are in 25.7 g of $CaSO_4$:

A) 0.189 mol B) 0.755 mol C) 4.00 mol D) 1.14×10^{23} mol

161 Question

How many O atoms are there in 51.4 g $CaSO_4$:

A) 4 B) 2.40×10^{24} C) 1.13 D) 9.09×10^{23}

162 Question

How many moles of Cl atoms are there in 65.2 g $CHCl_3$:

A) 0.548 mol B) 1.09 mol C) 3.0 mol D) 1.64 mol

163 Question

How many carbon atoms are there in 10 lbs of sugar, $C_{12}H_{22}O_{11}$:

A) 9.6×10^{25} atoms B) 159 atoms C) 4.21 atoms D) 342 atoms

164 Question

How many grams of sulfur are there in 6.0 g of $Fe_2(SO_4)_3$:

A) 2.40 g B) 0.48 g C) 6.00 g D) 1.44 g

165 Question

How many grams of sodium are there in 10. g of sodium sulfate, Na_2SO_4 :

A) 0.16 g B) 0.32 g C) 3.2 g D) 1.6 g

166 Question

How many grams of nitrogen are there in 7.5 g of $Ca(NO_3)_2$:

A) 0.64 g B) 1.3 g C) 0.15 g D) 1.15 g

167 Question

The mass of four moles of molecular bromine (Br_2) is :

A) 80 g B) 320 g C) 640 g D) 140 g

168 Question

Calculate the mass of 4.50 moles of chlorine gas, Cl_2 :

A) 4.5 g B) 15.7 g C) 160 g D) 319 g

169 Question

What is the mass of 3.00 moles of ethanol, C_2H_6O :

A) 4.99×10^{-24} g B) 138 g C) 6.52×10^{-2} g D) 50 g

170 Question

What is the mass of 0.20 mole of C_2H_6O (ethanol) :

A) 230 g B) 46 g C) 23 g D) none of these

171 Question

What is the mass of 8.25×10^{19} UF_6 molecules :

A) 352 g B) 0.0482 g C) 1.37×10^{-4} g D) 2.90×10^{22} g

172 Question

An average atom of uranium (U) is approximately how many times heavier than an atom of potassium :

A) 6.1 times B) 4.8 times C) 2.4 times D) 12.5 times

173 Question

The empirical formula of a compound of uranium and fluorine that is composed of 67.6% uranium and 32.4% fluorine is :

A) U_2F B) U_3F_4 C) UF_4 D) UF_6

174 Question

The percent composition by mass of a compound is 76.0% C, 12.8% H, and 11.2% O. The molar mass of this compound is 284.5 g/mol. What is the molecular formula of the compound :

A) $C_{10}H_6O$ B) $C_9H_{18}O$ C) $C_{16}H_{28}O_4$ D) $C_{18}H_{36}O_2$

---

175 Question

A compound was discovered whose composition by mass is 85.6% C and 14.4% H. Which of these choices could be the molecular formula of this compound :

A) CH_4 B) C_2H_4 C) C_3H_4 D) C_2H_6

---

176 Question

What is the coefficient of H_2O when the following equation is properly balanced with the smallest set of whole numbers :

___ Na + ___ H_2O → ___ $NaOH$ + ___ H_2

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

---

177 Question

What is the coefficient of H_2O when the following equation is properly balanced with the smallest set of whole numbers :

___ Al_4C_3 + ___ H_2O → ___ $Al(OH)_3$ + ___ CH_4

A) 3 B) 4 C) 6 D) 12

---

178 Question

When balanced with the smallest set of whole numbers, the coefficient of O_2 in the following equation is :

__ C_2H_4 + __ O_2 → __ CO_2 + __ H_2O

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

---

179 Question

What is the coefficient of H_2SO_4 when the following equation is properly balanced with the smallest set of whole numbers :

___ $Ca_3(PO_4)_2$ + ___ H_2SO_4 → ___ $CaSO_4$ + ___ H_3PO_4

A) 3 B) 8 C) 10 D) 11

---

180 Question

Balance the equation below using the smallest set of whole numbers. What is the coefficient of H_2O :

___ $PCl_{3(l)}$ + ___ $H_2O_{(l)}$ → ___ $H_3PO_{3(aq)}$ + ___ $HCl_{(aq)}$

A) 1 B) 2 C) 3 D) 5

---

181 Question

What is the coefficient of O_2 when the following equation is properly balanced with the smallest set of whole numbers :

___ CH_3OH + ___ O_2 → ___ CO_2 + ___ H_2O

A) 1 B) 2 C) 3 D) 7

182 Question

Balance the following equation using the smallest set of whole numbers, then add together the coefficients. Don't forget to count coefficients of one

$$\_\_ SF_4 + \_\_ H_2O \rightarrow \_\_ H_2SO_3 + \_\_ HF$$

The sum of the coefficients is :

A) 4 B) 6 C) 7 D) 9

---

183 Question

Balance the following equation using the smallest set of whole numbers, then add together the coefficients. Don't forget to count coefficients of one

$$\_\_\_ Cr + \_\_\_ H_2SO_4 \rightarrow \_\_\_ Cr_2(SO_4)_3 + \_\_\_ H_2$$

The sum of the coefficients is :

A) 4 B) 9 C) 11 D) 13

---

184 Question

Balance the following equation using the smallest set of whole numbers, then add together the coefficients. Don't forget to count coefficients of one

$$\_\_\_ Al + \_\_\_ H_2SO_4 \rightarrow \_\_\_ Al_2(SO_4)_3 + \_\_\_ H_2$$

The sum of the coefficients is :

A) 3 B) 5 C) 6 D) 9

---

185 Question

Balance the following equation using the smallest set of whole numbers, then add together the coefficients. Don't forget to count coefficients of one

$$\_\_\_ CH_4 + \_\_\_ Cl_2 \rightarrow \_\_\_ CCl_4 + \_\_\_ HCl$$

The sum of the coefficients is :

A) 4 B) 6 C) 8 D) 10

186 Question

Ammonia reacts with diatomic oxygen to form nitric oxide and water vapor :

$$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$$

When 40.0 g NH_3 and 50.0 g O_2 are allowed to react, which is the limiting reagent :

A) NH_3 B) O_2 C) Neither reagent is limiting D) 9

---

187 Question

Ammonia reacts with diatomic oxygen to form nitric oxide and water vapor :

$$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$$

When 20.0 g NH_3 and 50.0 g O_2 are allowed to react, which is the limiting Reagent :

A) NH_3 B) O_2 C) Neither reagent is limiting D) 9

---

188 Question

When 22.0 g NaCl and 21.0 g H_2SO_4 are mixed and react according to the equation below, which is the limiting reagent :

$$2NaCl + H_2SO_4 \rightarrow Na_2SO_4 + 2HCl$$

A) NaCl B) H_2SO_4 C) HCl D) No reagent is limiting

---

189 Question

Vanadium(V) oxide reacts with calcium according to the chemical equation below. When 10.0 moles of V2O5 are mixed with 10.0 moles of Ca, which is the limiting reagent :

$$V_2O_{5(s)} + 5Ca_{(l)} \rightarrow 2V_{(l)} + 5CaO_{(s)}$$

A) V_2O_5 B) Ca C) V D) No reagent is limiting

190 Question

Chlorine gas can be made from the reaction of manganese dioxide with hydrochloric acid. Which is the limiting reagent when 28 g of MnO_2 are mixed with 42 g of HCl :

$$MnO_{2(s)} + 4HCl_{(aq)} \rightarrow MnCl_{2(aq)} + 2H_2O_{(l)} + Cl_{2(g)}$$

(A) MnO_2 (B) HCl (C) $MnCl_2$ (D) No reagent is limiting

191 Question

How many grams of Cl_2 can be prepared from the reaction of 16.0 g of MnO_2 and 30.0 g of HCl according to the following chemical equation :

$$MnO_2 + 4HCl \rightarrow MnCl_2 + C_{l2} + 2H_2O$$

(A) 0.82 g (B) 5.8 g (C) 13.0 g (D) 14.6 g

192 Question

Hydrochloric acid can be prepared by the following reaction :

$$2NaCl_{(s)} + H_2SO_{4(aq)} \rightarrow 2HCl_{(g)} + Na_2SO_{4(s)}$$

How many grams of HCl can be prepared from 2.00 mol H_2SO_4 and 150 g NaCl :

(A) 7.30 g (B) 93.5 g (C) 146 g (D) 150 g

193 Question

What is the theoretical yield of chromium that can be produced by the reaction of 40.0 g of Cr_2O_3 with 8.00 g of aluminum according to the chemical equation below :

$$2Al + Cr_2O_3 \rightarrow Al_2O_3 + 2Cr$$

(A) 7.7 g (B) 15.4 g (C) 27.3 g (D) 30.8 g

194 Question

Calculate the mass of FeS formed when 9.42 g of Fe reacts with 8.50 g of S :

$Fe_{(s)} + S_{(s)} \rightarrow FeS_{(s)}$

A) 17.9 g B) 87.9 g C) 26.0 g D) 14.8 g

---

195 Question

Calculate the mass of excess reagent remaining at the end of the reaction in which 90.0 g of SO_2 are mixed with 100.0 g of O_2 :

$2SO_2 + O_2 \rightarrow 2SO_3$

A) 11.5 g B) 22.5 g C) 67.5 g D) 77.5 g

---

196 Question

What is the maximum number of grams of ammonia, NH_3, that can be obtained from the reaction of 10.0 g of H_2 and 80.0 g of N_2 :

$N_2 + 3H_2 \rightarrow 2NH_3$

A) 28.4 g B) 48.6 g C) 56.7 g D) 90.0 g

---

197 Question

How many grams of water could be made from 5.0 mol H_2 and 3.0 mol O_2 :

A) 90 g B) 36 g C) 42 g D) 45 g

---

198 Question

Ammonia reacts with diatomic oxygen to form nitric oxide and water vapor :

$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$

What is the theoretical yield of water, in moles, when 40.0 g NH_3 and 50.0 g O_2 are mixed and allowed to react :

A) 1.30 mol B) 1.57 mol C) 1.87 mol D) 3.53 mol

---

199 Question

What is the theoretical yield of vanadium, in moles, that can be produced by the reaction of 2.0 mole of V_2O_5 with 6.0 mole of calcium based on the following chemical equation :

$V_2O_{5(s)} + 5Ca_{(l)} \rightarrow 2V_{(l)} + 5CaO_{(s)}$

A) 1.0 mol B) 1.6 mol C) 2.0 mol D) 2.4 mol

200 Question

What is the theoretical yield of vanadium, in moles, that can be produced by the reaction of 1.0 mole of V_2O_5 with 4.0 mole of calcium based on the following chemical equation :

$$V_2O_{5(s)} + 5Ca_{(l)} \rightarrow 2V_{(l)} + 5CaO_{(s)}$$

(A) 1.0 mol (B) 1.6 mol (C) 2.0 mol (D) 0.80 mol

201 Question

What is the theoretical yield of vanadium that can be produced by the reaction of 40.0 g of V_2O_5 with 40.0 g of calcium based on the following chemical equation :

$$V_2O_{5(s)} + 5Ca_{(l)} \rightarrow 2V_{(l)} + 5CaO_{(s)}$$

(A) 11.2 g (B) 5.6 g (C) 22.4 g (D) 20.3 g

202 Question

How many grams of Cr can be produced by the reaction of 44.1 g of Cr_2O_3 with 35.0 g of Al according to the following chemical equation :

$$2Al + Cr_2O_3 \rightarrow Al_2O_3 + 2Cr$$

(A) 7.56 g (B) 30.2 g (C) 67.4 g (D) 104 g

203 Question

What is the theoretical yield of aluminum that can be produced by the reaction of 60.0 g of aluminum oxide with 30.0 g of carbon according to the following chemical equation :

$$Al_2O_3 + 3C \rightarrow 2Al + 3CO$$

(A) 30.0 g (B) 7.9 g (C) 101.2 g (D) 31.8 g

204 Question

A 1.375 g sample of mannitol, a sugar found in seaweed, is burned completely in oxygen to give 1.993 g of carbon dioxide and 0.9519 g of water. The empirical formula of mannitol is :

(A) CHO (B) CH_7O_3 (C) C_3H_2O (D) $C_3H_7O_3$

205 Question

A 0.8715 g sample of sorbic acid, a compound first obtained from the berries of a certain ash tree, is burned completely in oxygen to give 2.053 g of carbon dioxide and 0.5601 g of water. The empirical formula of sorbic acid is :

(A) CH_2O (B) C_3H_4O (C) CH_4O_3 (D) $C_3H_4O_2$

206 Question

The first step in the Ostwald process for producing nitric acid is

$$4NH_{3(g)} + 5O_{2(g)} \rightarrow 4NO_{(g)} + 6H_2O_{(g)}$$

If the reaction of 150 g of ammonia with 150 g of oxygen gas yields 87 g of nitric oxide (NO), what is the percent yield of this reaction :

(A) 100% (B) 49% (C) 77% (D) 33%

207 Question

One way of obtaining pure sodium carbonate is through the decomposition of the mineral trona, $Na_5(CO_3)_2(HCO_3)\cdot 2H_2O$,

$$Na_5(CO_3)_2(HCO_3)\cdot 2H_2O_{(s)} \rightarrow 5Na_2CO_{3(s)} + CO_{2(g)} + 3H_2O_{(g)}$$

When 1.00 metric ton (1×10^3 kg) of trona is decomposed, 0.74 metric ton of Na_2CO_3 is recovered. What is the percent yield of this reaction:

(A) 93% (B) 43% (C) 22% (D) 83%

208 Question

The Hall process for the production of aluminum involves the reaction of aluminum oxide with elemental carbon to give aluminum metal and carbon monoxide. If the yield of this reaction is 75%, what mass of aluminum metal can be produced from the reaction of 1.65×10^6 of aluminum oxide with 1.50×10^6 g of carbon:

(A) 1.6×10^5 g (B) 3.3×10^5 g (C) 6.6×10^5 g (D) 8.7×10^5 g

209 Question

When octane (C_8H_{18}) is burned in a particular internal combustion engine, the yield of products (carbon dioxide and water) is 93%. What mass of carbon ioxide will be produced in this engine when 15.0 g of octane is burned with 15.0 g of oxygen gas

A) 13 g B) 12 g C) 21 g D) 54 g

210 Question

The Hall process for the production of aluminum involves the reaction of aluminum oxide with elemental carbon to give aluminum metal and carbon monoxide. If the yield of this reaction is 82% and aluminum ore is 71% by mass aluminum oxide, what mass of aluminum ore must be mined in order to produce 1.0×10^3 kg (1 metric ton) of aluminum metal by the Hall process :

A) 1.8×10^3 kg B) 2.2×10^3 kg C) 1.1×10^3 kg D) 3.3×10^3 kg

211 Question

A method for producing pure copper metal involves the reaction of copper(I) sulfide with oxygen gas to give copper metal and sulfur dioxide. Suppose the yield of this reaction is 87%. What mass of a copper ore consisting of 46% copper(I) sulfide must be mined in order to produce 1.0×10^3 kg (1.0 metric ton) of copper metal :

A) 1.4×10^3 kg B) 3.2×10^3 kg C) 1.3×10^3 kg D) 1.5×10^3 kg

212 Question

Aluminum hydroxide reacts with nitric acid to form aluminum nitrate and water. What mass of water can be formed by the reaction of 15.0 g of aluminum hydroxide with excess nitric acid:

A) 1.15 g B) 3.46 g C) 45.0 g D) 10.4 g

213 Question

What is the molar mass of $Ca(OH)_2$:

A) 40 g/mol B) 56 g/mol C) 74 g/mol D) 92 g/mol

214 Question

How many moles are present in 44 g of CO_2 :

A) 0.5 mol B) 1 mol C) 2 mol D) 4 mol

215 Question

How many molecules are present in 2 moles of H_2O :

A) 3.011×10^{23} B) 6.022×10^{23} C) 1.204×10^{24} D) 2.408×10^{24}

216 Question

What is the mass of 0.5 mol of NaCl :

A) 14.6 g B) 29.25 g C) 58.5 g D) 117 g

217 Question

How many oxygen atoms are present in 1 mole of H_2SO_4 :

A) 6.022×10^{23} B) 1.204×10^{24} C) 2.408×10^{24} D) 4.816×10^{24}

218 Question

The molar mass of $Al_2(SO_4)_3$ is approximately :

A) 246 g/mol B) 300 g/mol C) 342 g/mol D) 400 g/mol

219 Question

How many moles are contained in 98 g of H_2SO_4 :

A) 0.5 mol B) 1 mol C) 2 mol D) 4 mol

220 Question

What mass of O_2 contains 3 moles of oxygen molecules :

A) 16 g B) 32 g C) 64 g D) 96 g

221 Question

Which quantity contains the greatest number of atoms :

A) 1 mol H_2O B) 1 mol CO_2 C) 1 mol CH_4 D) 1 mol NH_3

222 Question

What is the empirical formula of a compound containing 40% C, 6.7% H, and 53.3% O :

A) CH_2O B) $C_2H_4O_2$ C) CHO D) $C_6H_{12}O_6$

223 Question

The molecular formula of a compound is three times its empirical formula. If the empirical formula is CH_2, the molecular formula could be :

A) C_2H_4 B) C_3H_6 C) C_4H_8 D) C_6H_{12}

224 Question

How many formula units are in 0.25 mol of Na_2CO_3 :

A) 1.51×10^{23} B) 3.01×10^{23} C) 6.022×10^{23} D) 1.204×10^{24}

225 Question

What mass of water is produced from 2 mol of H_2 :

A) 18 g B) 36 g C) 54 g D) 72 g

226 Question

Which compound has the greatest molar mass :

A) NH_3 B) H_2SO_4 C) $CaCO_3$ D) $Al_2(SO_4)_3$

227 Question

How many moles are in 160 g of SO_3 :

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

228 Question

What is the mass percent of oxygen in H_2O :

A) 11.1% B) 50% C) 88.9% D) 94.1%

229 Question

How many atoms are present in 2 mol of CO_2 :

A) 6.022×10^{23} B) 1.204×10^{24} C) 3.613×10^{24} D) 7.226×10^{24}

230 Question

What mass of carbon dioxide is produced from 1 mol of carbon :

A) 12 g B) 22 g C) 44 g D) 56 g

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231 Question

How many grams are in 0.75 mol of KCl :

A) 18.6 g B) 37.3 g C) 55.9 g D) 74.5 g

232 Question

How many hydrogen atoms are present in 3 mol of NH_3 :

A) 6.022×10^{23} B) 1.806×10^{24} C) 5.419×10^{24} D) 7.226×10^{24}

233 Question

What is the molar mass of Fe_2O_3 :

A) 112 g/mol B) 144 g/mol C) 160 g/mol D) 176 g/mol

234 Question

What volume of CO_2 is produced theoretically from complete combustion of 1 mol CH_4 :

A) 0.5 mol CO_2 B) 1 mol CO_2 C) 2 mol CO_2 D) 4 mol CO_2

235 Question

The percent composition of hydrogen in CH_4 is closest to :

A) 25% B) 50% C) 75% D) 80%

236 Question

How many moles of oxygen atoms are in 2 mol of $Ca(NO_3)_2$:

A) 4 mol B) 6 mol C) 8 mol D) 12 mol

237 Question

What is the mass of 3.01×10^{23} molecules of H_2O :

A) 9 g B) 18 g C) 27 g D) 36 g

238 Question

Which compound contains the highest percentage of oxygen :

A) H_2O B) CO_2 C) SO_3 D) H_2SO_4

239 Question

How many moles are in 27 g of aluminum :

A) 0.5 mol B) 1 mol C) 1.5 mol D) 2 mol

240 Question

How many sulfur atoms are present in 0.5 mol of H_2SO_4 :

A) 3.011×10^{23} B) 6.022×10^{23} C) 1.204×10^{24} D) 2.408×10^{24}

241 Question

What mass of NaOH contains 2 moles :

A) 20 g B) 40 g C) 60 g D) 80 g

242 Question

How many atoms are present in 1 mol of O_2 :

A) 6.022×10^{23} B) 1.204×10^{24} C) 2.408×10^{24} D) 4.816×10^{24}

243 Question

The molar mass of $CuSO_4$ is approximately :

A) 96 g/mol B) 120 g/mol C) 160 g/mol D) 200 g/mol

244 Question

What is the percent composition of carbon in CO_2 :

A) 27.3% B) 40% C) 50% D) 72.7%

245 Question

How many molecules are in 11 g of CO_2 :

A) 1.505×10^{23} B) 3.011×10^{23} C) 6.022×10^{23} D) 9.033×10^{23}

246 Question

What is the molar mass of $Ca_3(PO_4)_2$:

A) 210 g/mol B) 250 g/mol C) 310 g/mol D) 400 g/mol

247 Question

What mass of oxygen is required to form 44 g CO_2 :

A) 12 g B) 16 g C) 32 g D) 44 g

---

248 Question

How many moles of carbon atoms are in 2 mol of C_2H_6 :

A) 1 mol B) 2 mol C) 4 mol D) 6 mol

---

249 Question

The percent composition of nitrogen in NH_3 is closest to :

A) 17.6% B) 50% C) 82.4% D) 94.1%

---

250 Question

What is the molar mass of $K_2Cr_2O_7$:

A) 194 g/mol B) 250 g/mol C) 294 g/mol D) 394 g/mol

"كادَ الإنسانيموت من شِدّةِ القلق
ناسيًا أنّ لهُ ربًّايَشق الفلق"

135	134	133	132	131	130	129	128	127	126
D	B	B	A	D	D	D	A	D	C
145	144	143	142	141	140	139	138	137	136
D	B	A	B	B	D	B	A	B	D
155	154	153	152	151	150	149	148	147	146
C	A	C	D	D	C	D	D	C	A
165	164	163	162	161	160	159	158	157	156
C	D	A	D	D	D	B	D	B	D
175	174	173	172	171	170	169	168	167	166
B	D	D	A	B	D	B	D	C	B
185	184	183	182	181	180	179	178	177	176
D	D	B	D	C	C	A	C	D	B
195	194	193	192	191	190	189	188	187	186
D	D	B	B	C	B	B	A	A	B
205	204	203	202	201	200	199	198	197	196
B	D	D	B	D	B	D	C	A	C
215	214	213	212	211	210	209	208	207	206
C	B	C	D	B	D	B	C	A	D
225	224	223	222	221	220	219	218	217	216
B	A	D	A	C	D	B	C	C	B
235	234	233	232	231	230	229	228	227	226
A	B	C	C	C	C	C	C	B	D
245	244	243	242	241	240	239	238	237	236
A	A	C	B	D	A	B	C	A	D

250	249	248	247	246
C	C	C	C	C

CHAPTER THREE

Gases

مع IQ الطلاب بأمان

الفُل يعني وسيم

الطحن يااااا وسيم

علامتك مضمونة مع وسيم ولد عبدربه

غير العلامة الكاملة ما بنقبل

الكيمياء لعبة، واحنا قد اللعب

بنك الاسئلة جهتك الأخيرة نحو الفل

سهل تجيب العلامة العالية

بس صعب تجيب العلامة الكاملة وانت مش من طلاب ولد عبدربه

251 Question

If temperature is constant, the relationship between pressure and volume is :

(A) direct (B) inverse (C) ----- (D) -----

252 Question

If pressure is constant, the relationship between temperature and volume is :

(A) direct (B) inverse (C) ----- (D) -----

253 Question

If pressure of a gas is increased and its volume remains constant, what will happen to its temperature :

(A) increase (B) decrease (C) stay the same (D) -----

254 Question

If a gas's volume is decreased and pressure is constant, its temperature will :

(A) increase (B) decrease (C) remain the same (D) -----

255 Question

If the temperature of a gas remains constant but pressure is decreased, the volume will :

(A) increase (B) decrease (C) remain the same (D) -----

256 Question

Convert 2.3 atm into mmHg :

(A) 2300 mmHg (B) 1750 mmHg (C) 2.3 mmHg (D) 0.0030 mmHg

257 Question

Convert 6.7 liters into milliliters :

(A) 0.0067 mL (B) 0.0088 mL (C) 5092 mL (D) 6700 mL

258 Question

The pressure of a gas is 750.0 torr when its volume is 400.0 mL. Calculate the pressure (in atm) if the gas is allowed to expand to 600.0 mL at constant temperature :

(A) 0.660 atm (B) 1.48 atm (C) 500.0 atm (D) 1125 atm

259 Question

The volume of a gas is increased from 150.0 mL to 350.0 mL by heating it. If the original temperature of the gas was 25.0°C, what will its final temperature be (in °C) :

(A) 146°C (B) 10.7°C (C) 58.3°C (D) 422°C

---

260 Question

A gas exerts a pressure of one atm at standard temperature (273.0 K). What must the temperature be adjusted to for the gas to exert a pressure of 4.00 atm? (Give your answer in °C) :

(A) −205°C (B) 68.3°C (C) 819°C (D) 1092°C

---

261 Question

A quantity of gas has a volume of 250.0 liters at 17.0°C and 3.00 atm of pressure. To what volume must the gas be increased for the gas to be under STP conditions :

(A) 78.4 L (B) 88.5 L (C) 706 L (D) 771 L

---

262 Question

What are standard temperature and pressure conditions for gases :

(A) 0°C and 0 torr (B) 0 K and 760 torr (C) −273°C and 1 atm (D) 0°C and 760 torr

---

263 Question

Avogadro stated that equal volumes of gases under the same conditions of temperature and pressure have equal :

(A) numbers of molecules (B) numbers of grams (C) molar masses (D) atoms

---

264 Question

What volume of CH_4 at 0°C and 1.00 atm contains the same number of molecules as 0.50 L of N_2 measured at 27°C and 1.50 atm :

(A) 0.37 L (B) 0.46 L (C) 0.68 L (D) 0.82 L

---

265 Question

If 3.0 L of helium at 20.0°C is allowed to expand to 4.4 L, with the pressure remaining the same, what is the new temperature :

(A) 702°C (B) 430°C (C) 157°C (D) −30.0°C

---

266 Question

At what temperature will 41.6 grams N_2 exert a pressure of 815 torr in a 20.0 L cylinder :

(A) 134 K (B) 176 K (C) 238 K (D) 337 K

267 Question

What volume of O_2, collected at 22.0°C and 728 mmHg, would be produced by the decomposition of 8.15 g $KClO_3$?

$2KClO_3(s) \rightarrow 2KCl(s) + 3O_2(g)$

A) 1.12 L B) 1.48 L C) 1.68 L D) 2.23 L

---

268 Question

Ammonia gas is synthesized according to the balanced equation : $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$

If 15.0 liters of nitrogen are reacted with an excess of hydrogen, how many liters of ammonia could be produced :

A) 5.00 L B) 10.0 L C) 15.0 L D) 30.0 L

---

269 Question

A gas has a volume of 3.4 L at 25°C. What is the final temperature if the volume increases to 4.7 L :

A) 412 K B) 415 K C) 312 K D) 315 K

---

270 Question

The initial pressure of a gas is 457 mmHg, the final volume is 750 mL with a final pressure of 650 mmHg. What is the initial volume of the gas :

A) 1100 ml B) 2000 ml C) 2100 ml D) 1000 ml

---

271 Question

A gas of 3.4 moles occupies a volume of 40.6 mL at 298 K. What is the pressure of the gas :

A) 42100 kPa B) 130100 kPa C) 2.1×10^5 kPa D) 5000 kPa

---

272 Question

At 18°C, 34.7 grams of carbon dioxide gas creates a pressure of 613 mmHg. What is the volume of the gas :

A) 20.4 L B) 23.3 L C) 25.8 L D) 30.8 L

---

273 Question

A 3.00 L pocket of air at sea level has a pressure of 100 atm. Suppose the air pocket rises in the atmosphere to a certain height and expands to a volume of 10.0 L. What is the pressure of the air at the new volume :

A) 30 atm B) 33 atm C) 36 atm D) 39 atm

---

274 Question

The gas in a balloon occupies 3.50 L at 300 K. At which temperature will the balloon expand to 8.50 L :

A) 729 K B) 854 K C) 631 K D) 729 C

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275 Question

A gas is collected by water; it contains 78.5 atm of nitrogen, 998.7 atm of oxygen and 324.1 atm of hydrogen. Determine the total pressure of this gas :

(A) 2745.3 atm (B) 348.9 atm (C) 1847.3 atm (D) 1401.3 atm

---

276 Question

How many moles of argon are there in 20.0 L, at 25°C and 96.8 kPa :

(A) 0.853 mol (B) 0.428 mol (C) 1.65 mol (D) 2 mol

---

277 Question

What volume will 2.00 mol of oxygen gas occupy at STP :

(A) 45 L (B) 50 L (C) 40 L (D) 35 L

---

278 Question

A weather balloon has a volume of 1750 L at 103 kPa. The balloon is released to the atmosphere. At the highest point above the ground, the pressure on the balloon is 35.0 kPa. What is the new volume of the balloon at this height :

(A) 5150 L (B) 5813 L (C) 6974 L (D) 4085 L

---

279 Question

A gas occupies 12.0 L at 25°C. What volume will it occupy at 50°C if pressure remains constant :

(A) 10.2 L (B) 11.0 L (C) 13.0 L (D) 24.0 L

---

280 Question

If the pressure on a gas is tripled while temperature remains constant, the volume will :

(A) triple (B) become one-third (C) double (D) remain constant

---

281 Question

Which gas law describes the relationship between pressure and volume :

(A) Charles's Law (B) Boyle's Law (C) Gay-Lussac's Law (D) Avogadro's Law

---

282 Question

Which gas law describes the relationship between temperature and volume :

(A) Boyle's Law (B) Dalton's Law (C) Charles's Law (D) Ideal Gas Law

283 Question

Which gas law states that pressure is directly proportional to temperature when volume is constant :

A) Boyle's Law B) Charles's Law C) Gay-Lussac's Law D) Dalton's Law

284 Question

At STP, one mole of any gas occupies :

A) 11.2 L B) 22.4 L C) 44.8 L D) 1.00 L

285 Question

What happens to gas pressure if temperature increases in a rigid container :

A) decreases B) stays the same C) increases D) becomes zero

286 Question

Which of the following units is commonly used for gas pressure :

A) mol B) L C) atm D) g

287 Question

A gas occupies 5.0 L at 1.0 atm. What will the volume be at 2.0 atm if temperature is constant :

A) 10.0 L B) 7.5 L C) 5.0 L D) 2.5 L

288 Question

A gas occupies 8.0 L at 300 K. What volume will it occupy at 600 K :

A) 4.0 L B) 8.0 L C) 16.0 L D) 24.0 L

289 Question

Which equation represents the Ideal Gas Law :

A) $PV = nRT$ B) $P_1V_1 = P_2V_2$ C) $V_1/T_1 = V_2/T_2$ D) $P_1/T_1 = P_2/T_2$

290 Question

In the Ideal Gas Law, the symbol "n" represents :

A) pressure B) temperature C) number of moles D) density

291 Question

In the Ideal Gas Law, temperature must always be in :

A Celsius B Fahrenheit C Kelvin D atm

292 Question

A gas has a pressure of 2.0 atm and volume of 3.0 L. What is the value of PV :

A 1.5 B 5.0 C 6.0 D 9.0

293 Question

What is the SI unit for pressure :

A torr B atm C pascal D mmHg

294 Question

760 mmHg is equal to :

A 1 atm B 2 atm C 760 atm D 0.5 atm

295 Question

Which scientist proposed that equal volumes of gases contain equal numbers of molecules :

A Boyle B Charles C Avogadro D Dalton

296 Question

If volume and temperature are constant, increasing the number of gas particles will :

A decrease pressure B increase pressure C not affect pressure D decrease density

297 Question

Which variable must remain constant for Boyle's Law :

A temperature B pressure C volume D moles

298 Question

Which variable must remain constant for Charles's Law :

A pressure B temperature C volume D density

299 Question

Which law explains why a balloon expands when heated :

A) Boyle's Law B) Charles's Law C) Dalton's Law D) Graham's Law

300 Question

A sample of gas occupies 2.5 L at 1.2 atm. If the pressure changes to 3.0 atm at constant temperature, what is the new volume :

A) 0.50 L B) 1.0 L C) 2.5 L D) 6.25 L

301 Question

A gas occupies 4.0 L at 273 K. What will its volume be at 546 K if pressure remains constant :

A) 2.0 L B) 4.0 L C) 8.0 L D) 12.0 L

302 Question

A gas exerts a pressure of 3.5 atm in a 2.0 L container. What pressure will it exert in a 5.0 L container at constant temperature :

A) 0.70 atm B) 1.4 atm C) 3.5 atm D) 8.75 atm

303 Question

Which gas law relates pressure and temperature :

A) Boyle's Law B) Charles's Law C) Gay-Lussac's Law D) Dalton's Law

304 Question

A gas occupies 10.0 L at 27°C. What volume will it occupy at 127°C if pressure is constant :

A) 4.0 L B) 7.5 L C) 13.3 L D) 20.0 L

305 Question

At constant volume, if the Kelvin temperature doubles, the pressure will :

A) halve B) remain constant C) double D) triple

306 Question

Which factor does NOT affect gas pressure :

A) temperature B) volume C) number of particles D) color of the container

307 Question

If 1 mole of gas occupies 22.4 L at STP, then 0.5 mole occupies :

A) 5.6 L B) 11.2 L C) 22.4 L D) 44.8 L

308 Question

A gas in a sealed rigid container is heated. Which variable stays constant :

A) pressure B) temperature C) volume D) kinetic energy

309 Question

The SI unit of temperature used in gas law calculations is :

A) Celsius B) Fahrenheit C) Kelvin D) Joule

310 Question

A gas occupies 7.5 L at 1 atm. What pressure is needed to compress it to 2.5 L :

A) 0.33 atm B) 1.0 atm C) 3.0 atm D) 7.5 atm

311 Question

The gas constant "R" is used in :

A) Boyle's Law B) Charles's Law C) Dalton's Law D) Ideal Gas Law

312 Question

What is the approximate volume occupied by 3 moles of gas at STP :

A) 22.4 L B) 33.6 L C) 44.8 L D) 67.2 L

313 Question

If gas pressure increases while temperature remains constant, volume :

A) increases B) decreases C) remains unchanged D) doubles

314 Question

A gas at 300 K is cooled to 150 K at constant pressure. Its volume will :

A) double B) triple C) halve D) remain constant

315 Question

Which law explains why hot air balloons rise :

A) Dalton's Law B) Boyle's Law C) Charles's Law D) Graham's Law

316 Question

A gas occupies 250.0 L at 17.0°C and 3.00 atm. To what volume must the gas be changed to be under STP conditions :

A) 78.4 L B) 88.5 L C) 706 L D) 771 L

317 Question

A gas exerts a pressure of 1 atm at 273 K. What temperature is required for the gas to exert 4.00 atm pressure :

A) -205 C B) 68.3 C C) 819 C D) 1092 C

318 Question

Avogadro's Law states that equal volumes of gases under the same conditions contain equal :

A) masses B) atoms C) numbers of molecules D) pressures

319 Question

What volume of methane at 0°C and 1 atm contains the same number of molecules as 0.50 L of nitrogen at 27°C and 1.50 atm :

A) 0.37 L B) 0.46 L C) 0.68 L D) 0.82 L

320 Question

If 3.0 L of helium at 20°C expands to 4.4 L at constant pressure, what is the final temperature :

A) 702 C B) 430 C C) 157 C D) -30 C

321 Question

At what temperature will 41.6 g of N_2 exert a pressure of 815 torr in a 20.0 L container :

A) 134 K B) 176 K C) 238 K D) 337 K

322 Question

A gas occupies 4.80 L at 740 torr. What pressure is required to compress it to 2.10 L at constant temperature :

A) 162 torr B) 338 torr C) 1690 torr D) 520 torr

323 Question

A gas sample at 27°C occupies 3.50 L. What volume will it occupy at 127°C if pressure remains constant :

(A) 4.67 L (B) 5.60 L (C) 2.63 L (D) 7.00 L

324 Question

At constant volume, a gas pressure changes from 1.5 atm at 300 K to 4.5 atm. What is the final temperature :

(A) 100 K (B) 300 K (C) 600 K (D) 900 K

325 Question

A gas occupies 8.0 L at STP. How many moles are present :

(A) 0.18 mol (B) 0.36 mol (C) 0.50 mol (D) 1.25 mol

326 Question

The pressure exerted by 2.0 mol of gas in a 5.0 L container at 300 K is :

(A) 4.9 atm (B) 9.8 atm (C) 19.7 atm (D) 24.6 atm

327 Question

A gas collected over water has a total pressure of 755 torr. If water vapor pressure is 25 torr, the pressure of dry gas is :

(A) 730 torr (B) 755 torr (C) 780 torr (D) 25 torr

328 Question

A 2.50 mol sample of gas occupies 15.0 L at 27°C. What is the pressure :

(A) 2.05 atm (B) 3.10 atm (C) 4.50 atm (D) 6.80 atm

329 Question

A balloon contains 0.50 mol He at 25°C and 1 atm. What is its approximate volume :

(A) 6.1 L (B) 12.2 L (C) 24.5 L (D) 49.0 L

330 Question

Which law explains why aerosol cans explode when heated :

(A) Boyle's Law (B) Charles's Law (C) Gay-Lussac's Law (D) Avogadro's Law

331 Question

A gas occupies 10.0 L at 2 atm. If pressure drops to 0.5 atm, the volume becomes :

A) 2.5 L B) 5.0 L C) 20.0 L D) 40.0 L

332 Question

At STP, 44.8 L of gas corresponds to :

A) 0.5 mol B) 1 mol C) 2 mol D) 4 mol

333 Question

If pressure and moles remain constant, volume is directly proportional to :

A) density B) Kelvin temperature C) molar mass D) kinetic energy squared

334 Question

A rigid container contains gas at 200 K. If temperature rises to 400 K, pressure will :

A) halve B) remain constant C) double D) quadruple

335 Question

A sample occupies 6.0 L at 300 K. What temperature is needed for volume to become 9.0 L :

A) 150 K B) 300 K C) 450 K D) 600 K

336 Question

A sample of gas at 1 atm and 273 K occupies 22.4 L. At 546 K and same pressure, volume is :

A) 11.2 L B) 22.4 L C) 44.8 L D) 67.2 L

337 Question

A gas has pressure 3 atm and volume 2 L. If volume triples, pressure becomes :

A) 9 atm B) 6 atm C) 3 atm D) 1 atm

338 Question

A gas occupies 1.5 L at 25°C and 1 atm. What volume at STP :

A) 1.1 L B) 1.4 L C) 1.8 L D) 2.0 L

339 Question

What is the pressure of 0.50 mol gas in 10 L at 300 K :

A) 0.12 atm B) 0.50 atm C) 1.23 atm D) 2.46 atm

340 Question

The gas constant R equals :

A) 0.0821 L·atm/mol·K B) 8.31 mol/L·K C) 273 atm·L/mol D) 22.4 L/mol

341 Question

Which gas law relates volume and moles :

A) Boyle's Law B) Avogadro's Law C) Dalton's Law D) Graham's Law

342 Question

The Kelvin temperature corresponding to 27°C is :

A) 246 K B) 273 K C) 300 K D) 327 K

343 Question

Which gas law explains breathing in humans best :

A) Boyle's Law B) Charles's Law C) Dalton's Law D) Graham's Law

344 Question

The unit torr is equivalent to :

A) 1 atm B) 1 mmHg C) 760 atm D) 273 Pa

345 Question

Gas particles are assumed to have negligible :

A) kinetic energy B) temperature C) volume D) mass

346 Question

A 5.0 L gas sample at 2 atm expands to 20 L. Final pressure :

A) 0.25 atm B) 0.50 atm C) 1 atm D) 8 atm

347 Question

At constant pressure, decreasing temperature causes volume to :

A increase B decrease C remain same D double

348 Question

If a gas exerts 760 torr, pressure in atm is :

A 0.5 atm B 1 atm C 2 atm D 10 atm

349 Question

Absolute zero equals :

A 0 C B -100 C C -273 C D 273 C

350 Question

A gas occupies 12 L at 3 atm. What volume at 1 atm :

A 4 L B 12 L C 24 L D 36 L

351 Question

A gas sample occupies 9.0 L at 1.5 atm. What will the pressure be if the volume decreases to 3.0 L at constant temperature :

A 0.50 atm B 1.5 atm C 3.0 atm D 4.5 atm

352 Question

A gas occupies 7.5 L at 350 K. What volume will it occupy at 175 K if pressure remains constant :

A 1.9 L B 3.75 L C 7.5 L D 15.0 L

353 Question

A gas exerts 2.4 atm pressure in a rigid container at 300 K. What pressure will it exert at 450 K :

A 1.6 atm B 2.4 atm C 3.6 atm D 4.8 atm

354 Question

At STP, 11.2 L of gas corresponds to :

A 0.25 mol B 0.50 mol C 1.00 mol D 2.00 mol

355 Question

If the number of moles increases while volume and temperature remain constant, pressure will :

A) decrease B) increase C) stay constant D) become zero

356 Question

A gas sample has a volume of 18 L at 2 atm. What is the volume at 6 atm :

A) 3 L B) 6 L C) 12 L D) 54 L

357 Question

A gas occupies 5.0 L at 20°C. What volume at 40°C :

A) 2.5 L B) 5.3 L C) 7.5 L D) 10.0 L

358 Question

Which gas law is represented by :

A) Charles's Law B) Dalton's Law C) Boyle's Law D) Graham's Law

359 Question

A gas occupies 22.4 L at STP. How many molecules are present :

A) 3.01×10^{23} B) 6.02×10^{23} C) 1.20×10^{24} D) 2.24×10^{23}

360 Question

A gas at 1 atm occupies 2.0 L. If volume doubles and temperature stays constant, pressure becomes :

A) 0.25 atm B) 0.50 atm C) 1.0 atm D) 2.0 atm

361 Question

The relationship between volume and Kelvin temperature is :

A) inverse B) direct C) exponential D) unrelated

362 Question

A gas occupies 14.0 L at 700 torr. What pressure is needed to compress it to 7.0 L :

A) 350 torr B) 700 torr C) 1400 torr D) 2100 torr

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363 Question

At constant temperature, decreasing volume causes pressure to :

A) decrease B) increase C) stay constant D) become zero

364 Question

Which gas law explains scuba diving pressure changes :

A) Boyle's Law B) Charles's Law C) Avogadro's Law D) Dalton's Law

365 Question

A gas sample occupies 30 L at 300 K. What volume at 600 K :

A) 15 L B) 30 L C) 45 L D) 60 L

366 Question

A gas occupies 2.5 L at 3 atm. What is the value of PV :

A) 1.5 B) 5.5 C) 7.5 D) 10.5

367 Question

A gas collected over water has a total pressure of 760 torr. If water vapor pressure is 18 torr, dry gas pressure is :

A) 742 torr B) 760 torr C) 778 torr D) 18 torr

368 Question

The equation for the ideal gas law is :

A) Boyle's Law B) Combined Gas Law C) Ideal Gas Law D) Charles's Law

369 Question

A gas occupies 16 L at 2 atm. What volume at 4 atm :

A) 4 L B) 8 L C) 16 L D) 32 L

370 Question

A gas occupies 12.0 L at 273 K. What volume at 546 K :

A) 6.0 L B) 12.0 L C) 24.0 L D) 48.0 L

371 Question

A gas at 2 atm occupies 5 L. If pressure decreases to 1 atm, new volume is :

(A) 2.5 L (B) 5.0 L (C) 10.0 L (D) 20.0 L

---

372 Question

A sample contains 3 moles at STP. What volume does it occupy :

(A) 22.4 L (B) 44.8 L (C) 67.2 L (D) 89.6 L

---

373 Question

Which gas law explains why lungs expand during inhalation :

(A) Charles's Law (B) Boyle's Law (C) Dalton's Law (D) Graham's Law

---

374 Question

A gas occupies 24.0 L at 3.0 atm. What volume will it occupy at 1.5 atm if temperature remains constant :

(A) 6.0 L (B) 12.0 L (C) 24.0 L (D) 48.0 L

---

375 Question

A gas sample at 400 K occupies 10.0 L. What will its volume be at 200 K at constant pressure :

(A) 2.5 L (B) 5.0 L (C) 10.0 L (D) 20.0 L

"لن تفشل ابدا حتى تتوقف عن المحاولة"

260	259	258	257	256	255	254	253	252	251
C	D	A	D	B	A	B	A	A	B
270	269	268	267	266	265	264	263	262	261
A	A	D	D	D	C	D	A	D	D
280	279	278	277	276	275	274	273	272	271
B	C	A	A	A	D	A	A	B	C
290	289	288	287	286	285	284	283	282	281
C	A	C	D	C	C	B	C	C	B
300	299	298	297	296	295	294	293	292	291
B	B	A	A	B	C	A	C	C	C
310	309	308	307	306	305	304	303	302	301
C	C	C	B	D	C	C	C	B	C
320	319	318	317	316	315	314	313	312	311
C	D	C	C	D	C	C	B	D	D
330	329	328	327	326	325	324	323	322	321
C	B	C	A	B	B	D	A	C	D
340	339	338	337	336	335	334	333	332	331
A	C	B	D	C	C	C	B	C	D
350	349	348	347	346	345	344	343	342	341
D	C	B	B	B	C	B	A	C	B
360	359	358	357	356	355	354	353	352	351
B	B	C	B	B	B	B	C	B	D
370	369	368	367	366	365	364	363	362	361
C	B	C	A	C	D	A	B	C	B

375	374	373	372	371
B	D	B	C	C

CHAPTER FOUR

Physical Properties of Solutions

مع IQ الطلاب بأمان

الفُل يعني وسيم

الطحن يااااا وسيم

علامتك مضمونة مع وسيم ولد عبدربه

غير العلامة الكاملة ما بنقبل

الكيمياء لعبة، واحنا قد اللعب

بنك الاسئلة جهتك الأخيرة نحو الفل

سهل تجيب العلامة العالية

بس صعب تجيب العلامة الكاملة وانت مش من طلاب ولد عبدربه

376 Question

A solution that contains the maximum amount of solute dissolved at a specific temperature is called :

(A) Unsaturated solution (B) Supersaturated solution (C) Saturated solute (D) Dilute solution

377 Question

Which type of solution is unstable and may crystallize with time :

(A) Saturated (B) Unsaturated (C) Supersaturated (D) Dilute

378 Question

Which of the following is an example of a gas–liquid solution :

(A) Brass (B) Air (C) Soda water (D) Solder

379 Question

Brass is an example of :

(A) Gas in liquid (B) Liquid in liquid (C) Solid in solid (D) Gas in solid

380 Question

Ethanol dissolved in water is classified as :

(A) Gas in liquid (B) Liquid in liquid (C) Solid in liquid (D) Solid in solid

381 Question

Which interaction must be strong for good solubility to occur :

(A) Solvent-solvent only (B) Solute-solute only (C) Solute-solvent (D) Ion-ion only

382 Question

If solute-solvent attractions are stronger than other interactions, the solution process is usually :

(A) Endothermic (B) Neutral (C) Exothermic (D) Impossible

383 Question

Which compound is most soluble in water :

(A) CCl_4 (B) Benzene (C) NaCl (D) I_2

384 Question

Which pair consists of two nonpolar substances :

A) Water and ethanol
B) CCl_4 and benzene
C) NH_3 and HCl
D) Water and acetone

385 Question

Acetone is miscible with water mainly because :

A) It is nonpolar
B) It has a polar C=O bond
C) It is ionic
D) It has metallic bonding

386 Question

Solvation in water is specifically called :

A) Ionization
B) Condensation
C) Hydration
D) Neutralization

387 Question

Two liquids completely soluble in each other are called :

A) Saturated
B) Miscible
C) Hydrated
D) Colloidal

388 Question

Which solvent is best for dissolving ionic compounds :

A) Benzene
B) CCl_4
C) Water
D) Hexane

389 Question

Bromine (Br_2) is more soluble in benzene than in water because Br_2 is :

A) Ionic
B) Polar
C) Nonpolar
D) Metallic

390 Question

KCl is expected to dissolve better in NH_3 than in CCl_4 because NH_3 is :

A) Nonpolar
B) Ionic
C) Polar
D) Metallic

391 Question

Formaldehyde (CH_2O) is soluble in water because it can form :

A) Metallic bonds
B) Hydrogen bonds
C) Ionic bonds
D) Covalent networks

392 Question

Which compound is expected to dissolve best in CCl_4 :

A) Na_2SO_4 B) HCl C) C_7H_{16} D) KCl

393 Question

Which concentration unit is defined as moles of solute per liter of solution :

A) Molality B) Mole fraction C) Molarity D) Mass percent

394 Question

Molality is expressed in units of :

A) mol/L B) mol/kg C) g/L D) kg/mol

395 Question

Which concentration unit is unitless :

A) Molarity B) Molality C) Mole fraction D) Both C and mass percent

396 Question

What is the mass percent of 10 g NaCl dissolved in 90 g water :

A) 5% B) 10% C) 15% D) 20%

397 Question

Which concentration unit changes with temperature :

A) Molality B) Mole fraction C) Mass percent D) Molarity

398 Question

A solution contains 2 moles solute and 8 moles solvent. The mole fraction of solute is :

A) 0.20 B) 0.25 C) 0.40 D) 0.80

399 Question

Molality depends on :

A) Volume of solution B) Volume of solvent C) Mass of solvent D) Density only

400 Question

Which unit is best when temperature changes significantly :

A) Molarity B) Molality C) Volume percent D) ppm

401 Question

A solution contains 5 mol solute in 2 L solution. The molarity is :

A) 1.0 M B) 2.0 M C) 2.5 M D) 10 M

402 Question

What is the molality of a solution containing 1 mol solute in 500 g solvent :

A) 0.5 m B) 1.0 m C) 2.0 m D) 5.0 m

403 Question

A nonvolatile solute causes the vapor pressure to :

A) Increase B) Decrease C) Remain constant D) Become zero

404 Question

Raoult's law relates vapor pressure to :

A) Molality B) Mole fraction C) Density D) Temperature only

405 Question

If the mole fraction of solvent decreases, vapor pressure will :

A) Increase B) Decrease C) Stay constant D) Double automatically

406 Question

Adding a nonvolatile solute causes boiling point to :

A) Decrease B) Increase C) Remain constant D) Become zero

407 Question

The equation for boiling point elevation is :

A) $\Delta T_b = K_b m$ B) $\Delta T_f = K_f m$ C) $\pi = MRT$ D) $P = XP°$

408 Question

ΔT_b is always :

A Negative B Positive C Zero D Imaginary

409 Question

Freezing point depression is represented by :

A $\Delta T_f = K_f m$ B $\Delta T_b = K_b m$ C $\pi = MRT$ D $P = XP°$

410 Question

Adding a nonvolatile solute causes freezing point to :

A Increase B Decrease C Stay constant D Equal boiling point

411 Question

ΔT_f is calculated by :

A $T_{solution} - T_{pure}$ B $T_{pure} - T_{solution}$ C $T_{pure} + T_{solution}$ D $T_{solution} / T_{pure}$

412 Question

Ethylene glycol is commonly used as :

A Fertilizer B Catalyst C Antifreeze D Oxidizing agent

413 Question

Osmotic pressure is symbolized by :

A ΔT_b B ΔT_f C π D X

414 Question

Osmotic pressure equation is :

A $\pi = MRT$ B $\Delta T_b = K_b m$ C $PV = nRT$ D $\Delta T_f = K_f m$

415 Question

The unit of osmotic pressure is usually :

A mol/L B atm C kg/mol D g/mL

416 Question

A solution isotonic with seawater has the same :

(A) Density (B) Osmotic pressure (C) Vapor pressure (D) Boiling point

417 Question

Which colligative property is commonly used to determine molar mass :

(A) Density (B) Surface tension (C) Freezing point depression (D) Conductivity

418 Question

Osmotic pressure can also be used to determine :

(A) Color intensity (B) Molecular formula (C) Molar mass (D) Density only

419 Question

Which of the following is a nonelectrolyte :

(A) NaCl (B) KCl (C) Glucose (D) Na_2SO_4

420 Question

Which solution has the greatest boiling point elevation :

(A) 1 m glucose (B) 1 m urea (C) 1 m sucrose (D) All are equal

421 Question

Which property depends only on the number of particles :

(A) Colligative property (B) Density (C) Viscosity (D) Polarity

422 Question

What is the mole fraction of solvent if solute mole fraction is 0.25 :

(A) 0.25 (B) 0.50 (C) 0.75 (D) 1.25

423 Question

If 25 g solute are dissolved in 75 g solvent, the mass percent of solute is :

(A) 20% (B) 25% (C) 50% (D) 75%

424 Question

Which solution has the highest freezing point :

A) Pure water B) Salt solution C) Sugar solution D) Ethylene glycol solution

425 Question

Which solution property increases with molality :

A) Vapor pressure B) Boiling point elevation C) Freezing point D) Volatility

426 Question

Which property decreases with increasing concentration :

A) Boiling point B) Osmotic pressure C) Vapor pressure D) Molality

427 Question

The stronger the solute-solvent attractions, the :

A) Lower the solubility B) Greater the solubility C) Lower the polarity D) Smaller the mole fraction

428 Question

Water is a good solvent for ionic compounds because it is :

A) Nonpolar B) Polar C) Metallic D) Gaseous

429 Question

Hexane is expected to dissolve best in :

A) Water B) NH_3 C) CCl_4 D) HCl

430 Question

Which interaction is broken when solute particles separate :

A) Solvent-solvent B) Solute-solvent C) Solute-solute D) Hydrogen bonding only

431 Question

Which process forms new solute-solvent interactions :

A) Hydration B) Solvation C) Crystallization D) Both A and B

432 Question

Which liquid pair is miscible :

A) Water and oil
B) Benzene and water
C) Ethanol and water
D) Hexane and water

433 Question

A solution containing less solute than maximum capacity is called :

A) Saturated
B) Supersaturated
C) Unsaturated
D) Concentrated

434 Question

Which quantity is unitless :

A) Molarity
B) Molality
C) Mole fraction
D) Osmotic pressure

435 Question

What is the molarity of 3 mol solute in 500 mL solution :

A) 1.5 M
B) 3 M
C) 6 M
D) 0.6 M

436 Question

If the mass of solvent doubles while moles stay constant, molality will :

A) Double
B) Halve
C) Stay constant
D) Become zero

437 Question

Which factor mainly affects gas solubility in water according to the chapter :

A) Pressure only
B) Temperature
C) Density only
D) Color

438 Question

Which of the following is a polar molecule :

A) I_2
B) CCl_4
C) CH_2O
D) C_7H_{16}

439 Question

Which nonpolar substance dissolves best in nonpolar solvents :

A) HCl
B) Na_2SO_4
C) I_2
D) NH_3

440 Question

Vapor-pressure lowering is proportional to :

(A) Density (B) Mole fraction of solute (C) Temperature only (D) Mass only

441 Question

In a one-solute solution :

(A) $X_1 = X_2$ (B) $X_1 + X_2 = 1$ (C) $X_1 - X_2 = 1$ (D) $X_1X_2 = 1$

442 Question

Which solution has greater osmotic pressure :

(A) 0.1 M glucose (B) 1.0 M glucose (C) Pure water (D) Distilled water

443 Question

Which concentration unit uses kilograms of solvent :

(A) Molarity (B) Mass percent (C) Molality (D) Mole fraction

444 Question

Which solution property is measured in atm :

(A) Molality (B) Osmotic pressure (C) Mole fraction (D) Mass percent

445 Question

The gas constant used in osmotic pressure calculations is :

(A) 8.31 J/mol (B) 0.0821 L·atm/mol·K (C) 22.4 L/mol (D) 6.02×10^{23}

446 Question

Which colligative property involves semipermeable membranes :

(A) Vapor pressure lowering (B) Boiling point elevation (C) Osmotic pressure (D) Freezing point depression

447 Question

Which type of compound dissolves best in polar solvents :

(A) Nonpolar hydrocarbons (B) Ionic compounds (C) Noble gases (D) Metals only

448 Question

Which property is directly proportional to molality :

(A) ΔT_b (B) Vapor pressure (C) Freezing point (D) Density

449 Question

Which process is endothermic when solute-solvent attractions are weak :

(A) Dissolution (B) Crystallization (C) Hydration (D) Ionization

450 Question

Which solution has the smallest vapor pressure :

(A) Pure solvent (B) Most concentrated solution (C) Most dilute solution (D) Unsaturated solution

451 Question

Which property depends on the number of dissolved particles and not identity :

(A) Conductivity (B) Colligative property (C) Density (D) Polarity

452 Question

Which chapter topic deals with determining molar mass from freezing point depression :

(A) Solvation (B) Colligative properties (C) Miscibility (D) Gas solubility

453 Question

Which process occurs when solute particles are surrounded by solvent molecules :

(A) Crystallization (B) Solvation (C) Condensation (D) Sublimation

454 Question

Which term specifically describes solvation in water :

(A) Ionization (B) Hydration (C) Neutralization (D) Evaporation

455 Question

Which type of intermolecular force is strongest between water molecules :

(A) London dispersion forces (B) Dipole-induced dipole (C) Hydrogen bonding (D) Metallic bonding

456 Question

Which solution would most likely be ideal :

A) Water + ethanol
B) Benzene + toluene
C) Acetone + chloroform
D) HCl + water

457 Question

In an ideal solution, intermolecular forces between unlike molecules are :

A) Much weaker
B) Much stronger
C) Similar to like-molecule forces
D) Zero

458 Question

Which factor mainly affects the rate of dissolving solids :

A) Stirring
B) Density
C) Color
D) Molecular formula only

459 Question

Crushing a solid solute before dissolving mainly increases :

A) Vapor pressure
B) Surface area
C) Density
D) Osmotic pressure

460 Question

Which statement is true for endothermic dissolution :

A) Heat is released
B) ΔH solution is negative
C) Heat is absorbed
D) Solubility always decreases

461 Question

Which type of solution contains the least amount of solute :

A) Concentrated
B) Dilute
C) Saturated
D) Supersaturated

462 Question

Which of the following is NOT affected by the number of dissolved particles :

A) Osmotic pressure
B) Boiling point elevation
C) Surface tension
D) Freezing point depression

463 Question

If the mole fraction of solvent is 0.80, the mole fraction of solute is :

A) 0.10
B) 0.20
C) 0.40
D) 0.80

464 Question

Which type of solution forms when gases dissolve in metals :

A) Alloy B) Aerosol C) Suspension D) Colloid

465 Question

The main reason oil does not dissolve in water is :

A) Water is nonpolar B) Oil is ionic C) Difference in polarity D) Hydrogen bonding in oil

466 Question

Which compound would have the greatest effect on boiling point elevation at equal concentration :

A) Glucose B) Urea C) NaCl D) Sucrose

467 Question

Which property is lowered by dissolved solute :

A) Osmotic pressure B) Boiling point C) Vapor pressure D) Molality

468 Question

What happens to the freezing point when solute concentration increases :

A) It increases B) It decreases C) It remains constant D) It equals boiling point

469 Question

Which expression represents freezing-point depression :

A) $\Delta T_f = T^\circ_f - T_f$ B) $\Delta T_f = T_f - T^\circ_f$ C) $\Delta T_f = K_b m$ D) $\Delta T_f = MRT$

470 Question

Which solution would have the highest osmotic pressure :

A) 0.5 M glucose B) 1.0 M glucose C) 0.1 M glucose D) Pure water

471 Question

Which liquid pair is least likely to be miscible :

A) Water and ethanol B) Benzene and toluene C) Water and hexane D) Acetone and water

472 Question

Which concentration unit requires total solution volume :

A Molality B Mole fraction C Molarity D Mass percent

473 Question

Which property is directly proportional to concentration :

A Osmotic pressure B Vapor pressure C Freezing point D Volatility

474 Question

Which of the following is an intensive property :

A Mass B Volume C Density D Number of moles

475 Question

A semipermeable membrane allows passage of :

A Solute only B Solvent only C Both equally D Neither

476 Question

Which chapter topic involves seawater isotonicity :

A Solvation B Osmotic pressure C Vapor pressure D Miscibility

477 Question

Which concentration unit is most useful in colligative property calculations :

A Molality B ppm C Volume percent D Density

478 Question

Which solution has the highest boiling point :

A Pure water B 0.5 m glucose C 1.0 m glucose D 2.0 m glucose

479 Question

The boiling-point constant depends on :

A Solute only B Solvent only C Pressure only D Solute mass only

480 Question

The freezing-point constant depends on :

A) Solvent B) Solute C) Mole fraction D) Density

481 Question

Which solution has the greatest freezing-point depression :

A) 0.1 m glucose B) 0.5 m glucose C) 1.0 m glucose D) Pure water

482 Question

Which type of interaction exists between ions and water molecules :

A) Metallic bonding B) Covalent bonding C) Ion-dipole interaction D) London forces only

483 Question

Which of the following is most polar :

A) CCl_4 B) Benzene C) Water D) Hexane

484 Question

Solubility is greatest when intermolecular forces between solute and solvent are :

A) Weak B) Similar in polarity C) Absent D) Metallic only

485 Question

If temperature increases, the vapor pressure of a liquid usually :

A) Decreases B) Increases C) Remains constant D) Becomes zero

486 Question

Which type of compound generally has low water solubility :

A) Ionic compounds B) Polar compounds C) Nonpolar hydrocarbons D) Alcohols

487 Question

Which quantity is expressed in mol/L :

A) Molality B) Molarity C) Mole fraction D) Mass percent

488 Question

Which solution would show the least boiling-point elevation :

A) 0.5 m glucose B) 1.0 m glucose C) 2.0 m glucose D) 3.0 m glucose

489 Question

If the mole fraction of solvent decreases from 0.90 to 0.70, vapor pressure will :

A) Increase B) Decrease C) Remain constant D) Double

490 Question

The main driving force for dissolution is often :

A) Increased randomness B) Metallic bonding C) Nuclear attraction D) Density increase

491 Question

Which solution has the greatest number of dissolved particles :

A) 1 mol glucose B) 1 mol sucrose C) 1 mol NaCl D) 1 mol ethanol

492 Question

Which type of solvent best dissolves polar molecules :

A) Nonpolar solvent B) Polar solvent C) Metallic solvent D) Noble gases

493 Question

Which of the following has hydrogen bonding :

A) CH_4 B) CCl_4 C) H_2O D) CO_2

494 Question

Which property is most useful for determining molar mass of proteins :

A) Density B) Osmotic pressure C) Surface tension D) Color intensity

495 Question

Which factor is most important in determining whether two liquids mix :

A) Density B) Color C) Polarity D) Boiling point only

496 Question

Which property increases when solute concentration increases :

(A) Vapor pressure (B) Freezing point (C) Osmotic pressure (D) Volatility

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497 Question

Which of the following is NOT a concentration unit :

(A) Molarity (B) Molality (C) Osmotic pressure (D) Mole fraction

---

498 Question

Which type of solution contains dissolved gases :

(A) Solid solution (B) Liquid solution (C) Gaseous solution (D) Colloidal solution

---

499 Question

Air is considered a :

(A) Liquid solution (B) Solid solution (C) Gaseous solution (D) Colloid

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500 Question

Which process occurs when sugar dissolves in water :

(A) Ionization (B) Solvation (C) Electrolysis (D) Sublimation

"على قدر اهل العزم تأتي العزائم"

385	384	383	382	381	380	379	378	377	376
B	B	C	C	C	B	C	C	C	C
395	394	393	392	391	390	389	388	387	386
D	B	C	C	B	C	C	C	B	C
405	404	403	402	401	400	399	398	397	396
B	B	B	C	C	B	C	A	D	B
415	414	413	412	411	410	409	408	407	406
B	A	C	C	B	B	A	B	A	B
425	424	423	422	421	420	419	418	417	416
B	A	B	C	A	D	C	C	C	B
435	434	433	432	431	430	429	428	427	426
C	C	C	C	D	C	C	B	B	C
445	444	443	442	441	440	439	438	437	436
B	B	C	B	B	B	C	C	B	B
455	454	453	452	451	450	449	448	447	446
C	B	B	B	B	B	A	A	B	C
465	464	463	462	461	460	459	458	457	456
C	A	B	C	B	C	B	A	C	B
475	474	473	472	471	470	469	468	467	466
B	C	A	C	C	B	A	B	C	C
485	484	483	482	481	480	479	478	477	476
B	B	C	C	C	A	B	D	A	B
495	494	493	492	491	490	489	488	487	486
C	B	C	B	C	A	B	A	B	C

500	499	498	497	496
B	C	B	C	C

CHAPTER FIVE

Thermochemistry

مع IQ الطلاب بأمان

الفُل يعني وسيم

الطحن يااااا وسيم

علامتك مضمونة مع وسيم ولد عبدربه

غير العلامة الكاملة ما بنقبل

الكيمياء لعبة، واحنا قد اللعب

بنك الاسئلة جهتك الأخيرة نحو الفل

سهل تجيب العلامة العالية

بس صعب تجيب العلامة الكاملة وانت مش من طلاب ولد عبدربه

501 Question

Temperature is a measure of :

(A) Total kinetic energy (B) Total potential energy (C) Average kinetic energy (D) Heat content

502 Question

Which unit is the SI unit of energy :

(A) cal (B) kcal (C) J (D) atm

503 Question

One calorie is equal to :

(A) 1.00 J (B) 2.09 J (C) 4.184 J (D) 8.314 J

504 Question

An exothermic reaction is one that :

(A) Absorbs heat (B) Releases heat (C) Absorbs work (D) Produces no energy

505 Question

For an exothermic reaction :

(A) $\Delta H > 0$ (B) $\Delta H < 0$ (C) $\Delta H = 0$ (D) ΔH cannot be determined

506 Question

For an endothermic reaction :

(A) $\Delta H < 0$ (B) $\Delta H = 0$ (C) $\Delta H > 0$ (D) $q = 0$

507 Question

Which process is endothermic :

(A) Freezing water (B) Condensation of steam (C) Vaporization of water (D) Deposition of vapor

508 Question

Which process is exothermic :

(A) Melting ice (B) Sublimation of dry ice (C) Vaporization of ethanol (D) Condensation of water

509 Question

The quantity of heat required to raise the temperature of 1 g of a substance by 1°C is called :

(A) Heat capacity (B) Specific heat capacity (C) Enthalpy (D) Internal energy

510 Question

The equation used to calculate heat during a temperature change is :

(A) $PV = nRT$ (B) $q = mc\Delta T$ (C) $E = mc^2$ (D) $\Delta H = \Sigma H_{products}$

511 Question

In the equation $q = mc\Delta T$, m represents :

(A) Molar mass (B) Mole number (C) Mass (D) Momentum

512 Question

In the equation $q = mc\Delta T$, c represents :

(A) Concentration (B) Specific heat capacity (C) Calorie (D) Constant pressure

513 Question

In the equation $q = mc\Delta T$, ΔT equals :

(A) $T_f - T_i$ (B) $T_i - T_f$ (C) q/m (D) mc

514 Question

If a system absorbs 250 J of heat :

(A) $q = -250$ J (B) $q = +250$ J (C) $\Delta H = -250$ J (D) $\Delta H = 0$

515 Question

If a system releases 600 J of heat :

(A) $q = +600$ J (B) $q = 0$ (C) $q = -600$ J (D) $q = +300$ J

516 Question

Which of the following is a state function :

(A) Heat (B) Work (C) Enthalpy (D) Friction

517 Question

Enthalpy is represented by the symbol :

A) E B) H C) G D) S

518 Question

The enthalpy change of a reaction is :

A) ΔH = Hreactants – Hproducts B) ΔH = Hproducts – Hreactants C) ΔH = q/m D) ΔH = mc

519 Question

When ΔH is negative, the reaction :

A) endothermic B) exothermic C) impossible D) no heat change

520 Question

When ΔH is positive, the reaction :

A) exothermic B) spontaneous C) endothermic D) constant temperature

521 Question

If a thermochemical equation is reversed :

A) ΔH remains unchanged B) ΔH doubles C) The sign of ΔH changes D) ΔH becomes zero

522 Question

If all coefficients in a thermochemical equation are multiplied by 2 :

A) ΔH is unchanged B) ΔH is divided by 2 C) ΔH doubles D) ΔH becomes positive

523 Question

The standard enthalpy of formation of an element in its standard state is :

A) 100 kJ/mol B) 1 kJ/mol C) -1 kJ/mol D) 0 kJ/mol

524 Question

The standard enthalpy of formation of $O_{2(g)}$ is :

A) +285.8 kJ/mol B) 0 kJ/mol C) -285.8 kJ/mol D) +32 kJ/mol

525 Question

The standard enthalpy of formation of $H_{2(g)}$ is :

A) 0 kJ/mol B) +286 kJ/mol C) -286 kJ/mol D) +572 kJ/mol

526 Question

The standard state pressure is :

A) 10 atm B) 100 atm C) 1 atm D) 0 atm

527 Question

Standard thermodynamic temperature is :

A) 0°C B) 25°C C) 100°C D) -273°C

528 Question

Which reaction represents a combustion reaction :

A) $HCl + NaOH \rightarrow NaCl + H_2O$ B) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$ C) $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$ D) $N_2 + 3H_2 \rightarrow 2NH_3$

529 Question

Combustion reactions are usually :

A) Endothermic B) Exothermic C) Thermoneutral D) Rersible only

530 Question

Which bond process requires energy :

A) Bond formation B) Bond breaking C) Condensation D) Freezing

531 Question

Bond formation generally :

A) Absorbs energy B) Releases energy C) Produces no energy change D) Stops reactions

532 Question

The enthalpy change can be estimated from bond energies using :

A) Bonds broken–Bonds formed B) Bonds formed–Bonds broken C) Mass × Temperature D) PV = nRT

533 Question

If more energy is released during bond formation than absorbed during bond breaking :

A) ΔH > 0 B) ΔH < 0 C) ΔH = 0 D) ΔH cannot be determined

534 Question

Which phase change has a positive ΔH :

A) Freezing B) Condensation C) Vaporization D) Deposition

535 Question

Which phase change has a negative ΔH :

A) Melting B) Sublimation C) Vaporization D) Condensation

536 Question

If 100 g of water is heated from 20°C to 30°C, the heat absorbed is :

A) 4184 J B) 418 J C) 41.84 J D) 8368 J

537 Question

A reaction with ΔH = 0 is called :

A) Endothermic B) Exothermic C) Thermoneutral D) Combustive

538 Question

The surroundings gain heat when the system :

A) Absorbs heat B) Releases heat C) Has ΔH = 0 D) Melts

539 Question

Which quantity is path dependent :

A) Enthalpy B) Temperature C) Pressure D) Heat

540 Question

The law of conservation of energy is the basis of :

A) Boyle's Law B) Hess's Law C) Charles's Law D) Dalton's Law

541 Question

Consider the thermochemical equation : $CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(l)$ $\Delta H = -890$ Kj

How much heat is released when 2.0 mol of CH_4 are burned :

A) -445 kJ B) -890 kJ C) -1780 kJ D) -3560 kJ

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542 Question

Consider the reaction : $2H_2(g) + O_2(g) \rightarrow 2H_2O(l)$ $\Delta H = -572$ kJ

The heat released when 1.0 mol $H_2O(l)$ forms is :

A) -1144 kJ B) -572 kJ C) -286 kJ D) +286 kJ

---

543 Question

A 50.0 g sample of water absorbs 2092 J. The temperature change is :

A) 5°C B) 10°C C) 15°C D) 20°C

---

544 Question

Which quantity is always negative for an exothermic process :

A) ΔT B) Mass C) ΔH D) Heat capacity

---

545 Question

Which process requires the greatest energy input :

A) Freezing B) Condensation C) Vaporization D) Deposition

---

546 Question

The reaction : $N_2(g) + O_2(g) \rightarrow 2NO(g)$ $\Delta H = +180.5$ kJ

is classified as :

A) Exothermic B) Endothermic C) Thermoneutral D) Catalytic

---

547 Question

If the reaction $C(graphite) + O_2(g) \rightarrow CO_2(g)$ $\Delta H = -393.5$ kJ

is reversed, ΔH becomes :

A) -393.5 kJ B) +393.5 kJ C) -787.0 kJ D) +787.0 kJ

---

548 Question

If the equation $H_2(g) + ½O_2(g) \rightarrow H_2O(l)$ $\Delta H = -286$ kJ

is multiplied by 3, ΔH becomes :

A) -858 kJ B) -286 kJ C) +858 kJ D) -143 kJ

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549 Question

The enthalpy change depends on :

(A) Initial and final states only (B) Catalyst only (C) Reaction mechanism only (D) Rate only

550 Question

Which of the following has $\Delta H°f = 0$:

(A) $CO_2(g)$ (B) $H_2O(l)$ (C) NaCl(s) (D) $Cl_2(g)$

551 Question

The standard enthalpy of formation of a compound is expressed in :

(A) kJ (B) kJ/mol (C) mol/kJ (D) J/g

552 Question

Which is NOT a standard state substance :

(A) $O_2(g)$ (B) $H_2(g)$ (C) O(g) (D) $N_2(g)$

553 Question

Hess's Law can be used because enthalpy is :

(A) Path dependent (B) A state function (C) A gas law (D) A kinetic property

554 Question

When a reaction absorbs 850 J :

(A) q = -850 J (B) q = +850 J (C) ΔH = -850 J (D) Heat is released

555 Question

Which phase transition is exothermic :

(A) Melting (B) Vaporization (C) Sublimation (D) Freezing

556 Question

The enthalpy of combustion of a fuel is usually :

(A) Positive (B) Negative (C) Zero (D) Variable but small

557 Question

Which reaction represents the standard enthalpy of formation of $CO_2(g)$:

A) $CO(g) + ½O_2(g) \rightarrow CO_2(g)$ B) $C(graphite) + O_2(g) \rightarrow CO_2(g)$ C) $C(diamond) + O_2(g) \rightarrow CO_2(g)$ D) $CO + O \rightarrow CO_2$

558 Question

The heat released by burning 0.50 mol CH_4 Is : $\Delta H_{comb} = -890$ kJ/mol

A) -222.5 kJ B) -445 kJ C) -890 kJ D) -1780 kJ

559 Question

Which of the following is a thermochemical equation :

A) $H_2 + Cl_2 \rightarrow 2HCl$ B) $H_2 + Cl_2 \rightarrow 2HCl \quad \Delta H = -184.6$ kJ C) $PV = nRT$ D) $q = mc\Delta T$

560 Question

If $\Delta H = +75$ kJ, the reaction :

A) Releases 75 kJ B) Absorbs 75 kJ C) Has no energy change D) Is impossible

561 Question

Which process increases the potential energy of molecules :

A) Freezing B) Condensation C) Vaporization D) Deposition

562 Question

The standard enthalpy change for : $Na(s) + ½Cl_2(g) \rightarrow NaCl(s)$ is :

A) Heat of combustion B) Heat of formation C) Heat of fusion D) Heat of vaporization

563 Question

If $q = mc\Delta T$ and ΔT is negative :

A) Heat was absorbed B) Heat was released C) Mass is negative D) Specific heat is zero

564 Question

Which property is intensive :

A) Heat content B) Mass C) Temperature D) Volume

565 Question

Which quantity does not depend on sample size :

A) Heat capacity B) Mass C) Temperature D) Total heat absorbed

566 Question

If 836.8 J heats 20.0 g water, ΔT equals :

A) 5°C B) 10°C C) 15°C D) 20°C

567 Question

A reaction with ΔH = -2500 kJ is :

A) Strongly endothermic B) Strongly exothermic C) Thermoneutral D) Impossible

568 Question

Which law allows adding chemical equations to obtain an overall ΔH :

A) Boyle's Law B) Charles's Law C) Hess's Law D) Dalton's Law

569 Question

Which phase change has molecules becoming more ordered :

A) Melting B) Vaporization C) Freezing D) Sublimation

570 Question

Which process corresponds to ΔHvap :

A) Solid → Liquid B) Liquid → Gas C) Gas → Solid D) Solid → Gas

571 Question

The heat required to melt one mole of a solid is :

A) ΔHcomb B) ΔHfus C) ΔHvap D) ΔHf

572 Question

The heat required to vaporize one mole of liquid is :

A) ΔHvap B) ΔHfus C) ΔHcomb D) ΔHrxn

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573 Question

Which transition releases heat :

A) Liquid → Gas
B) Solid → Liquid
C) Gas → Liquid
D) Solid → Gas

---

574 Question

The standard enthalpy of formation of Ca(s) is :

A) +635 kJ/mol
B) -635 kJ/mol
C) 0 kJ/mol
D) +1 kJ/mol

---

575 Question

If $\Delta H_{rxn} = \Sigma \Delta H_f(products) - \Sigma \Delta H_f(reactants)$, this equation is used to calculate :

A) Entropy
B) Free energy
C) Reaction enthalpy
D) Rate constant

---

576 Question

Which process decreases molecular potential energy :

A) Vaporization
B) Sublimation
C) Condensation
D) Melting

---

577 Question

When bonds form :

A) Energy is released
B) Energy is absorbed
C) Temperature becomes zero
D) Mass increases

---

578 Question

Which bond is generally strongest :

A) Single bond
B) Double bond
C) Triple bond
D) Hydrogen bond

---

579 Question

The surroundings lose heat when the system :

A) Absorbs heat
B) Releases heat
C) Freezes
D) Condenses

---

580 Question

Which process has $\Delta H > 0$:

A) Condensation
B) Freezing
C) Deposition
D) Melting

581 Question

If a reaction absorbs 150 kJ, then :

A) ΔH = -150 kJ B) ΔH = +150 kJ C) ΔH = 0 D) q = -150 kJ

582 Question

Which of the following is not a state function :

A) Pressure B) Temperature C) Enthalpy D) Heat

583 Question

If a reaction pathway changes, the overall ΔH :

A) Changes B) Remains the same C) Doubles D) Becomes zero

584 Question

Given the following equations :

$C(graphite) + O_2(g) \rightarrow CO_2(g)$ $\Delta H = -393.5$ kJ

$CO(g) + \frac{1}{2}O_2(g) \rightarrow CO_2(g)$ $\Delta H = -283.0$ kJ

Calculate ΔH for : $C(graphite) + \frac{1}{2}O_2(g) \rightarrow CO(g)$

A) -110.5 kJ B) +110.5 kJ C) -676.5 kJ D) +676.5 kJ

585 Question

Given : $H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(l)$ $\Delta H = -285.8$ kJ

What is ΔH for : $2H_2O(l) \rightarrow 2H_2(g) + O_2(g)$

A) +571.6 kJ B) -571.6 kJ C) +285.8 kJ D) -285.8 kJ

586 Question

A 100.0 g sample of water is heated from 20.0°C to 45.0°C. How much heat is absorbed :

A) 5230 J B) 8368 J C) 10460 J D) 12552 J

587 Question

Which bond-breaking process requires the most energy :

A) H-H B) O=O C) N≡N D) Cl-Cl

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588 Question

The reaction : $2NO(g) + O_2(g) \rightarrow 2NO_2(g)$
has $\Delta H = -114$ kJ . Heat released when 4 mol NO react completely :

A) -57 kJ B) -114 kJ C) -228 kJ D) -456 kJ

---

589 Question

The standard enthalpy of formation of a compound is measured under :

A) Any temperature B) Standard conditions C) Only at 0°C D) Vacuum conditions

---

590 Question

Which process is always endothermic :

A) Condensation B) Deposition C) Melting D) Freezing

---

591 Question

If 500 g of water absorbs 20.92 kJ, the temperature change is :

A) 5°C B) 10°C C) 15°C D) 20°C

---

592 Question

Given : $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$ $\Delta H = -92.4$ kJ
Heat released when 6 mol NH_3 form :

A) -46.2 kJ B) -92.4 kJ C) -138.6 kJ D) -277.2 kJ

---

593 Question

Which equation represents the standard enthalpy of formation of $NH_3(g)$:

A) $NH_4Cl \rightarrow NH_3 + HCl$ B) $N_2 + 3H_2 \rightarrow 2NH_3$ C) $\frac{1}{2}N_2 + 3/2H_2 \rightarrow NH_3$ D) $NH_3 + HCl \rightarrow NH_4Cl$

---

594 Question

A reaction with $\Delta H = +450$ kJ is :

A) Exothermic B) Endothermic C) Thermoneutral D) Catalytic

---

595 Question

The unit of bond energy is :

A) J B) J/mol C) kJ/mol D) mol/J

596 Question

Which of the following is not a thermochemical quantity :

A) ΔHcomb B) ΔHfus C) ΔHvap D) Molarity

---

597 Question

Calculate q for 250 g water heated from 25°C to 35°C :

A) 5230 J B) 10460 J C) 8368 J D) 4184 J

---

598 Question

Given : $2SO_2(g) + O_2(g) \rightarrow 2SO_3(g)$ $\Delta H = -198$ Kj

Heat released for producing 1 mol SO_3 :

A) -99 kJ B) -198 kJ C) -396 kJ D) -49.5 kJ

---

599 Question

If a calorimeter absorbs heat, the reaction inside it is :

A) Exothermic B) Endothermic C) Neutral D) Reversible

---

600 Question

Which phase transition decreases entropy and releases heat :

A) Vaporization B) Melting C) Freezing D) Sublimation

---

601 Question

The reaction : $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$ is usually :

A) Exothermic B) Endothermic C) Neutral D) all temperatures

---

602 Question

A reaction releases 1250 J. The value of q is :

A) + 1250 J B) - 1250 J C) + 625 J D) 0 J

---

603 Question

Which quantity measures heat required for a phase change :

A) ΔHvap B) ΔHfus C) Both A and B D) Neither

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604 Question

The standard state of carbon is :

A) Diamond B) Graphite C) Carbon vapor D) Fullerene

605 Question

If 2 mol CH_4 release 1780 kJ upon combustion, 5 mol CH_4 release :

A) 2225 kJ B) 4450 kJ C) 8900 kJ D) 3560 kJ

606 Question

Which law is directly based on conservation of energy :

A) Boyle's Law B) Charles's Law C) Hess's Law D) Avogadro's Law

607 Question

Which phase change requires energy input :

A) Freezing B) Deposition C) Condensation D) Sublimation

608 Question

Which reaction has $\Delta H°f = 0$ for all reactants :

A) Formation reaction B) Combustion reaction C) Elements in standard states D) Neutralization reaction

609 Question

The reaction enthalpy can be determined experimentally using :

A) Spectroscopy only B) Calorimetry C) Titration only D) Chromatography

610 Question

If products contain less energy than reactants :

A) $\Delta H > 0$ B) $\Delta H < 0$ C) $\Delta H = 0$ D) $q = 0$

611 Question

Which transition has the largest positive enthalpy change :

A) Freezing B) Condensation C) Melting D) Vaporization

612 Question

The enthalpy change for a reaction is independent of :

A) Initial state B) Final state C) Pathway D) Chemical equation

613 Question

A reaction absorbs 75 kJ from surroundings. The surroundings :

A) Gain 75 kJ B) Lose 75 kJ C) Gain 150 kJ D) Are unaffected

614 Question

If a reaction equation is divided by 2 :

A) ΔH doubles B) ΔH is unchanged C) ΔH is halved D) ΔH changes sign

615 Question

The enthalpy of reaction calculated from ΔH°f values is based on :

A) Hess's Law B) Boyle's Law C) Charles's Law D) Dalton's Law

616 Question

Which process is most likely to have a negative ΔH :

A) Melting B) Boiling C) Condensation D) Sublimation

617 Question

A system loses 450 J of heat. The surroundings :

A) Lose 450 J B) Gain 450 J C) Gain 900 J D) Gain 225 J

618 Question

A 200 g sample of water is heated from 25°C to 35°C. How much heat is absorbed :

A) 4184 J B) 8368 J C) 16736 J D) 20920 J

619 Question

If ΔH = -450 kJ, the reaction :

A) Absorbs 450 kJ B) Releases 450 kJ C) Has no heat change D) Is endothermic

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620 Question

A reaction with $\Delta H = +250$ kJ is :

(A) Exothermic (B) Endothermic (C) Thermoneutral (D) Catalytic

---

621 Question

Which standard enthalpy of formation value is always zero :

(A) $CO_2(g)$ (B) $H_2O(l)$ (C) $O_2(g)$ (D) $NH_3(g)$

---

622 Question

Calculate q : m = 50 g $c = 4.184\ J\ g^{-1}\ °C^{-1}$ $\Delta T = 15°C$:

(A) 1569 J (B) 2092 J (C) 3138 J (D) 4184 J

---

623 Question

The standard state temperature is generally :

(A) 0°C (B) 25°C (C) 50°C (D) 100°C

---

624 Question

Which quantity is extensive :

(A) Temperature (B) Density (C) Mass (D) Pressure

---

625 Question

If products have lower enthalpy than reactants :

(A) $\Delta H > 0$ (B) $\Delta H < 0$ (C) $\Delta H = 0$ (D) Cannot determine

"سَيَجْعَلُ اللهُ بَعْدَ عُسْرٍ يُسْرًا"

510	509	508	507	506	505	504	503	502	501
B	B	D	C	C	B	B	C	C	C
520	519	518	517	516	515	514	513	512	511
C	B	B	B	C	C	B	A	B	C
530	529	528	527	526	525	524	523	522	521
B	B	B	B	C	A	B	D	C	C
540	539	538	537	536	535	534	533	532	531
B	D	B	C	A	D	C	B	A	B
550	549	548	547	546	545	544	543	542	541
D	A	A	B	B	C	C	B	C	C
560	559	558	557	556	555	554	553	552	551
B	B	B	B	B	D	B	B	C	B
570	569	568	567	566	565	564	563	562	561
B	C	C	B	B	C	C	B	B	C
580	579	578	577	576	575	574	573	572	571
D	A	C	A	C	C	C	C	A	B
590	589	588	587	586	585	584	583	582	581
C	B	C	C	C	A	A	B	D	B
600	599	598	597	596	595	594	593	592	591
C	A	A	B	D	C	B	C	D	B
610	609	608	607	606	605	604	603	602	601
B	B	C	D	C	B	B	C	B	B
620	619	618	617	616	615	614	613	612	611
B	B	B	B	C	A	C	B	C	D

625	624	623	622	621
B	C	B	C	C

CHAPTER SIX

Chemical Kinetics

مع IQ الطلاب بأمان

الفُل يعني وسيم

الطحن يااااا وسيم

علامتك مضمونة مع وسيم ولد عبدربه

غير العلامة الكاملة ما بنقبل

الكيمياء لعبة، واحنا قد اللعب

بنك الاسئلة جهتك الأخيرة نحو الفل

سهل تجيب العلامة العالية

بس صعب تجيب العلامة الكاملة وانت مش من طلاب ولد عبدربه

626 Question

For the reaction : A → Products If doubling [A] causes the rate to double, the reaction is :

A Zero order B First order C Second order D Third order

---

627 Question

For the rate law : Rate = $k[A]^2$ If the concentration of A is tripled, the reaction rate becomes :

A 3 times larger B 6 times larger C 9 times larger D 27 times larger

---

628 Question

For the rate law : Rate = $k[A]^2[B]$ What is the overall order of the reaction :

A First order B Second order C Third order D Fourth order

---

629 Question

Which factor generally increases the rate of most chemical reactions :

A Lower temperature B Lower concentration C Higher temperature D Smaller surface area

---

630 Question

The rate constant is represented by the symbol :

A r B t C k D E

---

631 Question

The units of k for a first-order reaction are :

A $M\ s^{-1}$ B s^{-1} C $M^{-1}\ s^{-1}$ D $M^{-2}\ s^{-1}$

---

632 Question

The units of k for a second-order reaction are :

A $M^{-1}\ s^{-1}$ B s^{-1} C $M\ s^{-1}$ D $M^{2}\ s^{-1}$

---

633 Question

Which graph is linear for a first-order reaction :

A [A] vs time B 1/[A] vs time C ln[A] vs time D Rate vs time

634 Question

Which graph is linear for a second-order reaction :

A) [A] vs time
B) ln[A] vs time
C) Rate vs [A]
D) 1/[A] vs time

635 Question

Which graph is linear for a zero-order reaction :

A) [A] vs time
B) ln[A] vs time
C) 1/[A] vs time
D) ln(rate) vs ln[A]

636 Question

For a zero-order reaction : Rate = :

A) k[A]
B) k[A]²
C) k
D) k/[A]

637 Question

If the concentration of A doubles and the rate remains unchanged, the reaction is :

A) First order
B) Second order
C) Zero order
D) Third order

638 Question

The Arrhenius equation is :

A) PV = nRT
B) k = Ae^(-Ea/RT)
C) Rate = k[A]
D) q = mcΔT

639 Question

In the Arrhenius equation, Ea represents :

A) Activation energy
B) Frequency factor
C) Rate constant
D) Enthalpy

640 Question

Which variable has the greatest effect on reaction rate :

A) Color of reactants
B) Activation energy
C) Shape of container
D) Density of products

641 Question

The slowest elementary step in a mechanism is called :

A) Fast step
B) Molecular step
C) Rate-determining step
D) Reversible step

642 Question

A bimolecular elementary reaction involves :

A) One reacting particle B) Two reacting particles C) Three reacting particles D) Four reacting particles

---

643 Question

A unimolecular elementary reaction involves :

A) One reacting particle B) Two reacting particles C) Three reacting particles D) Four reacting particles

---

644 Question

Which of the following is not usually affected by a catalyst :

A) Activation energy B) Reaction pathway C) Equilibrium constant D) Reaction rate

---

645 Question

If k increases, the reaction generally :

A) Becomes slower B) Stops C) Becomes faster D) Changes order

---

646 Question

Increasing surface area of a solid reactant generally :

A) Decreases rate B) Increases rate C) Does not affect rate D) Changes reaction order

---

647 Question

For the rate law : Rate = k[A][B] If both [A] and [B] are doubled, the rate becomes :

A) 2 times larger B) 4 times larger C) 6 times larger D) 8 times larger

---

648 Question

For the rate law : Rate = $k[A]^2[B]$ If [A] is doubled and [B] remains constant, the rate becomes :

A) 2 times larger B) 4 times larger C) 6 times larger D) 8 times larger

---

649 Question

Which of the following would most likely have the largest activation energy :

A) Very fast reaction B) Very slow reaction C) Catalyzed reaction D) Diffusion process

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650 Question

If a reaction is second order in A and first order in B, the rate law is :

A) k[A][B] B) k[A]²[B] C) k[A][B]² D) k[A]²[B]²

---

651 Question

Which factor affects both collision frequency and collision energy :

A) Temperature B) Color C) Density D) Volume of products

---

652 Question

For the reaction : Rate = k[A]²[B]If [A] is doubled and [B] is tripled, the rate increases by :

A) 6 B) 12 C) 18 D) 24

---

653 Question

For the reaction : Rate = k[A][B]² If both reactants are doubled, the rate increases by :

A) 4 B) 6 C) 8 D) 16

---

654 Question

The overall order of the reaction : Rate = k[A]²[B]³ is :

A) 3 B) 4 C) 5 D) 6

---

655 Question

Which reaction order cannot be determined directly from the balanced equation :

A) Elementary reaction B) Unimolecular elementary reaction C) Experimental rate law D) Single-step reaction

---

656 Question

The rate law for an elementary reaction : A → Products is :

A) Rate = k B) Rate = k[A] C) Rate = k[A]² D) Rate = k/[A]

---

657 Question

The rate law for the elementary reaction : A + B → Products is :

A) Rate = k[A][B] B) Rate = k[A]²[B] C) Rate = k[A+B] D) Rate = k[A]²

658 Question

Which quantity is unchanged by a catalyst :

A) Rate
B) Activation energy
C) Equilibrium constant
D) Reaction pathway

659 Question

The Arrhenius equation predicts that increasing temperature will :

A) Decrease k
B) Increase k
C) Leave k unchanged
D) Make k zero

660 Question

The activation energy is represented by :

A) ΔH
B) k
C) Ea
D) t½

661 Question

Which reaction has the greatest fraction of effective collisions :

A) Low temperature
B) High activation energy
C) High temperature
D) Low concentration

662 Question

The collision theory states that a reaction occurs only when :

A) Molecules touch
B) Molecules have identical masses
C) Effective collisions occur
D) Products are stable

663 Question

Which factor does NOT affect the value of Ea :

A) Catalyst
B) Reaction mechanism
C) Nature of reactants
D) Concentration

664 Question

Increasing pressure has the greatest effect on the rate of reactions involving :

A) Solids
B) Liquids
C) Gases
D) Solutions only

665 Question

A catalyst in a mechanism is :

A) Consumed overall
B) Produced overall
C) Used and regenerated
D) An intermediate

666 Question

The slowest step in a mechanism controls :

A) ΔH B) Equilibrium constant C) Overall reaction rate D) Product identity

667 Question

Which elementary step is impossible :

A) Unimolecular B) Bimolecular C) Trimolecular D) Decamolecular

668 Question

Molecularity can be :

A) Zero B) Fractional C) Whole-number only D) Negative

669 Question

If temperature increases by 10°C, reaction rate typically :

A) Decreases B) Remains constant C) Approximately doubles D) Becomes zero

670 Question

A reaction with a very large Ea is generally :

A) Very fast B) Very slow C) Independent of temperature D) Zero order

671 Question

The unit of reaction rate is commonly :

A) mol B) M C) $M\ s^{-1}$ D) s

672 Question

Which concentration change causes the largest increase in rate for : Rate = $k[A]^3$

A) Doubling [A] B) Tripling [A] C) Quadrupling [A] D) Halving [A]

373 Question

If [A] doubles in a third-order reaction : Rate = $k[A]^3$ The rate increases by :

A) 2 B) 4 C) 6 D) 8

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674 Question

For a second-order reaction, if [A] triples, the rate becomes :

A) 3 times larger B) 6 times larger C) 9 times larger D) 27 times larger

---

675 Question

The highest point on a reaction coordinate diagram represents :

A) Products B) Reactants C) Transition state D) Intermediate

---

676 Question

Which reaction condition produces the most frequent collisions :

A) Low concentration B) High concentration C) Low temperature D) Small container only

---

677 Question

The energy difference between reactants and transition state is :

A) ΔH B) Ea C) k D) t½

---

678 Question

The overall reaction order can be :

A) Fractional B) Zero C) Integer D) All of the above

---

679 Question

A reaction has rate law : Rate = $k[A]^{0.5}$ The order with respect to A is :

A) 0 B) 0.5 C) 1 D) 2

---

680 Question

Which reaction order is most sensitive to concentration changes :

A) Zero order B) First order C) Second order D) Third order

---

681 Question

Which graph can be used to determine reaction order experimentally :

A) Concentration-time plot B) Integrated rate law plots C) ln[A] vs t plot D) All of the above

682 Question

The rate law for a reaction is determined from :

A) Balanced equation B) Experimental data C) Molecular mass D) Product concentration

683 Question

The reaction order is the sum of :

A) Stoichiometric coefficients B) Exponents in rate law C) Molecularities D) Activation energies

684 Question

Which factor affects both collision frequency and kinetic energy :

A) Catalyst B) Temperature C) Pressure only D) Surface area only

685 Question

In a multistep mechanism, the rate law is usually determined by :

A) Fastest step B) Last step C) Rate-determining step D) Overall equation

686 Question

The rate constant k changes when :

A) Concentration changes B) Temperature changes C) Time changes D) Volume changes

687 Question

For the reaction : Rate = $k[A]^2[B]$ If [A] is tripled and [B] is doubled, the rate increases by :

A) 6 B) 12 C) 18 D) 24

688 Question

For a second-order reaction : Rate = $k[A]^2$ If [A] decreases to half its original value, the rate becomes :

A) 1/2 B) 1/4 C) 1/8 D) 1/16

689 Question

Which factor does NOT change the value of k :

A) Temperature B) Catalyst C) Nature of reactants D) Concentration

690 Question

A catalyst affects :

A) ΔH B) Ea C) Equilibrium constant D) Stoichiometry

691 Question

The Arrhenius equation predicts that k increases exponentially with :

A) Pressure B) Volume C) Temperature D) Concentration

692 Question

If Ea is very small, the reaction is usually :

A) Fast B) Slow C) Impossible D) Zero order

693 Question

Which elementary step is bimolecular :

A) A → Products B) A + B → Products C) 2A + B → Products D) A + B + C → Products

694 Question

The molecularity of : $2NO \rightarrow N_2 + O_2$ is :

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

695 Question

Molecularity can never be :

A) 1 B) 2 C) 3 D) 1.5

696 Question

The rate law for an elementary reaction : $2A \rightarrow$ Products is :

A) Rate = k[A] B) Rate = $k[A]^2$ C) Rate = $k[A]^3$ D) Rate = k

697 Question

The rate law for an elementary reaction : $A + 2B \rightarrow$ Products is :

A) Rate = k[A][B] B) Rate = $k[A]^2[B]$ C) Rate = $k[A][B]^2$ D) Rate = $k[A]^2[B]^2$

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698 Question

A reaction has : Rate = $k[A]^0[B]^2$ The overall order is :

(A) 0 (B) 1 (C) 2 (D) 3

---

699 Question

Which reactant has no effect on rate ? Rate = $k[A]^0[B]^2$:

(A) A (B) B (C) Both (D) Neither

---

700 Question

The slow step controls :

(A) ΔH (B) Rate law (C) Equilibrium constant (D) Product color

---

701 Question

A reaction mechanism is proposed :

Step 1 (slow) : $NO_2 + CO \rightarrow NO + CO_2$

Step 2 (fast) : $NO + NO_2 \rightarrow N_2O_3$

The rate law predicted is :

(A) $k[NO_2]$ (B) $k[CO]$ (C) $k[NO_2][CO]$ (D) $k[NO]$

---

702 Question

Which species is a catalyst :

(A) Consumed overall (B) Produced overall (C) Used and regenerated (D) Appears only as product

---

703 Question

Which reaction is expected to be fastest :

(A) Large Ea, low T (B) Large Ea, high T (C) Small Ea, high T (D) Small Ea, low T

---

704 Question

A reaction has : Rate = k[A]^1.5 The order with respect to A is :

(A) 1 (B) 1.5 (C) 2 (D) 3

705 Question

If a reaction is first order and 75% has reacted, the fraction remaining is :

A) 75% B) 50% C) 25% D) 12.5%

---

706 Question

Which factor increases collision frequency without changing Ea :

A) Catalyst B) Concentration C) Reaction mechanism D) Product removal

---

707 Question

The collision frequency increases when :

A) Concentration decreases B) Temperature decreases C) Concentration increases D) Ea increases

---

708 Question

A catalyst changes :

A) Reaction pathway B) Initial concentration C) Product concentration D) Molecularity

---

709 Question

Which reaction order shows the greatest dependence on concentration :

A) Zero B) First C) Second D) Third

---

710 Question

The rate law contains information about :

A) Reaction mechanism B) Equilibrium only C) Product color D) Molecular mass only

---

711 Question

A reaction follows : Rate = $k[A]^3$ If [A] doubles, the rate increases by :

A) 2 B) 4 C) 6 D) 8

---

712 Question

If [A] is reduced to one-third of its original value in a third-order reaction : Rate = $k[A]^3$ The new rate is :

A) 1/3 B) 1/9 C) 1/27 D) 1/81

713 Question

According to Arrhenius theory :

A) Higher Ea increases k
B) Higher Ea decreases k
C) Ea does not affect k
D) k is of temperature

714 Question

Which quantity is represented by the slope of ln[A] vs time :

A) + k
B) - k
C) 1/k
D) - 1/k

715 Question

Which quantity is represented by the slope of 1/[A] vs time :

A) + k
B) - k
C) 1/k
D) - 1/k

716 Question

A catalyst appears :

A) Only in reactants
B) Only in products
C) As reactant and product
D) Not in mechanism

717 Question

For a reaction : Rate = $k[A]^2[B]$ If [A] doubles and [B] halves :

A) Rate unchanged
B) Rate doubles
C) Rate quadruples
D) Rate halves

718 Question

The units of k for an overall fourth-order reaction are :

A) $M^{-3} s^{-1}$
B) $M^{-2} s^{-1}$
C) $M^{-1} s^{-1}$
D) s^{-1}

719 Question

Which factor affects both collision frequency and collision energy :

A) Catalyst
B) Temperature
C) Surface area
D) Concentration

720 Question

A reaction has : Rate = k[A]^0.5 If [A] becomes four times larger, the rate becomes :

A) 2 times larger
B) 4 times larger
C) 8 times larger
D) 16 times larger

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721 Question

Rate = k[A]^0.5 If [A] becomes nine times larger :

A Rate doubles B Rate triples C Rate increases nine times D Rate increases 81 times

---

722 Question

Which order is most commonly associated with radioactive decay :

A Zero order B First order C Second order D Third order

---

723 Question

Which process increases the number of effective collisions :

A Lower temperature B Higher temperature C Lower concentration D Larger activation energy

---

724 Question

The rate-determining step is :

A Fastest step B Last step C Slowest step D Reversible step

---

725 Question

The overall reaction rate cannot exceed the rate of :

A Fastest step B Product formation C Slowest step D Catalyst regeneration

---

726 Question

A reaction has : Rate = $k[A][B]^2$ If [A] doubles and [B] triples, the rate changes by :

A 6 B 12 C 18 D 24

---

727 Question

If concentration doubles and rate increases eightfold, the reaction order is :

A First B Second C Third D Fourth

---

728 Question

If concentration triples and rate increases ninefold, the reaction order is :

A First B Second C Third D Fourth

729 Question

Which factor generally has the smallest effect on reaction rate :

A Temperature B Catalyst C Concentration D Color of reactants

730 Question

Powdered calcium carbonate reacts faster than marble chips because :

A Higher density B Lower activation energy C Greater surface area D Higher temperature

731 Question

A large frequency factor (A) indicates :

A More favorable collisions B Smaller Ea C Larger ΔH D Smaller equilibrium

732 Question

Which order gives a straight horizontal line when rate is plotted versus concentration :

A First B Second C Third D Zero

733 Question

Which reaction order is represented by : Rate = k :

A Zero B First C Second D Third

734 Question

Which variable appears in the exponent of the Arrhenius equation :

A Pressure B Volume C Activation energy D Concentration

735 Question

For the reaction : Rate = $k[A]^3[B]^2$ The overall order is :

A 3 B 4 C 5 D 6

736 Question

If [A] doubles in : Rate = $k[A]^3[B]^2$ while [B] remains constant, the rate increases by :

A 2 B 4 C 6 D 8

737 Question

Which reaction order gives the greatest rate increase when concentration is doubled :

A Zero order B First order C Second order D Third order

---

738 Question

A catalyst changes :

A Ea B ΔH C Equilibrium constant D Initial concentration

---

739 Question

A reaction has : Rate = k[A]^1.5 If [A] becomes four times larger, the rate becomes :

A 2 times larger B 4 times larger C 8 times larger D 16 times larger

---

740 Question

A reaction has : Rate = k[A]^0.5 If [A] becomes sixteen times larger, the rate becomes :

A 2 times larger B 4 times larger C 8 times larger D 16 times larger

---

741 Question

Which order can have a constant reaction rate :

A Zero order B First order C Second order D Third order

---

742 Question

For a zero-order reaction : Rate = k If concentration doubles :

A Rate doubles B Rate quadruples C Rate halves D Rate remains unchanged

---

743 Question

A reaction coordinate diagram shows :

A Pressure changes B Concentration changes C Energy changes D Volume changes

---

744 Question

The peak of a reaction coordinate diagram represents :

A Reactants B Products C Activated complex D Catalyst

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745 Question

The energy difference between reactants and activated complex is :

A) ΔH B) Ea C) ΔS D) k

746 Question

Powdered zinc reacts faster than zinc pellets because :

A) Lower Ea B) Greater surface area C) Higher density D) Higher molar mass

747 Question

Which reaction order can have units of s^{-1} for k :

A) Zero order B) First order C) Second order D) Third order

748 Question

The rate law is determined by :

A) Stoichiometry B) Experimental measurements C) Molecular mass D) Product yield

749 Question

Which reaction is most likely elementary :

A) Complex decomposition B) A → Products C) Fermentation D) Photosynthesis

750 Question

The molecularity of : A + B + C → Products is :

A) 1 B) 3 C) 5 D) 4

"جرب، اكتشف، كرر ... الكيمياء لا تنتهي"

635	634	633	632	631	630	629	628	627	626
A	D	C	A	B	C	C	C	C	B
645	644	643	642	641	640	639	638	637	636
C	C	A	B	C	B	A	B	C	C
655	654	653	652	651	650	649	648	647	646
C	C	C	B	A	B	B	B	B	B
665	664	663	662	661	660	659	658	657	656
C	C	D	C	C	C	B	C	A	B
675	674	673	672	671	670	669	668	667	666
C	C	D	C	C	B	C	C	D	C
685	684	683	682	681	680	679	678	677	676
C	B	B	B	D	D	B	D	B	B
695	694	693	692	691	690	689	688	687	686
D	B	B	A	C	B	D	B	C	B
705	704	703	702	701	700	699	698	697	696
C	B	C	C	C	B	A	C	C	B
715	714	713	712	711	710	709	708	707	706
A	B	B	C	D	A	D	A	C	B
725	724	723	722	721	720	719	718	717	716
C	C	C	B	B	B	B	A	B	C
735	734	733	732	731	730	729	728	727	726
D	C	C	A	D	A	C	D	B	C
745	744	743	742	741	740	739	738	737	736
B	B	C	C	D	A	B	C	A	D

750	749	748	747	746
B	B	B	B	B

CHAPTER SEVEN

Chemical Equilibrium

مع IQ الطلاب بأمان

الفُل يعني وسيم

الطحن يااااا وسيم

علامتك مضمونة مع وسيم ولد عبدربه

غير العلامة الكاملة ما بنقبل

الكيمياء لعبة، واحنا قد اللعب

بنك الاسئلة جهتك الأخيرة نحو الفل

سهل تجيب العلامة العالية

بس صعب تجيب العلامة الكاملة وانت مش من طلاب ولد عبدربه

751 Question

Consider the equilibrium : $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

The equilibrium constant expression is :

A) $Kc = [NH_3]^2 / [N_2][H_2]$ B) $Kc = [NH_3]^2 / [N_2][H_2]^3$ C) $Kc = [N_2][H_2]^3 / [NH_3]^2$ D) $Kc = [NH_3] / [N_2][H_2]^3$

---

752 Question

For the equilibrium : $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ The equilibrium expression is :

A) $[SO_3]^2 / [SO_2]^2[O_2]$ B) $[SO_3] / [SO_2][O_2]$ C) $[SO_2]^2[O_2] / [SO_3]$ D) $[SO_3]^2 / [SO_2][O_2]$

---

753 Question

For the equilibrium : $CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$ The equilibrium constant expression is :

A) $[CaO][CO_2]/[CaCO_3]$ B) $[CO_2]$ C) $[CaCO_3]/[CO_2]$ D) $[CaO][CO_2]$

---

754 Question

If $Kc >> 1$, then :

A) Reactants are favored B) Products are favored C) Neither side is favored D) Reaction stops

---

755 Question

If $Kc << 1$, then :

A) Products are favored B) Reactants are favored C) Equilibrium cannot exist D) Both sides are equal

---

756 Question

Which statement is true :

A) Equilibrium is static B) Equilibrium is dynamic C) Reactants disappear D) Products stop reacting

---

757 Question

For the reaction : $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$ If $Kc = 50$, then :

A) Products are favored B) Reactants are favored C) Equal amounts must exist D) No reaction occurs

---

758 Question

For the reaction : $2NO_2(g) \rightleftharpoons N_2O_4(g)$ $Kc = [N_2O_4] / [NO_2]^2$ If $[NO_2] = 0.50$ M and $[N_2O_4] = 1.00$ M, Kc equals :

A) 2 B) 4 C) 0.5 D) 1

759 Question

For the reaction : A ⇌ B Kc = 1 means :

(A) Products dominate (B) Reactants dominate (C) Neither side strongly favored (D) No equilibrium exists

760 Question

If a reaction equation is reversed :

(A) K remains unchanged (B) K becomes negative (C) K becomes 1/K (D) K doubles

761 Question

If all coefficients in an equation are multiplied by 2 :

(A) K doubles (B) K^2 results (C) √K results (D) K is unchanged

762 Question

If K = 25 for a reaction, the equilibrium constant for the reverse reaction is :

(A) 25 (B) 50 (C) 0.04 (D) 625

763 Question

Which species appears in Kc :

(A) Solids only (B) Liquids only (C) Gases and aqueous species (D) Catalysts only

764 Question

For : $2NO(g) + O_2(g) \rightleftharpoons 2NO_2(g)$ If Kc = 8.0 and $[NO_2]$ = 2.0 M [NO] = 1.0 M Then $[O_2]$ equals :

(A) 0.25 M (B) 0.50 M (C) 1.00 M (D) 2.00 M

765 Question

The reaction quotient is represented by :

(A) K (B) Q (C) E (D) G

766 Question

If Q < K :

(A) Shift left (B) Shift right (C) Already at equilibrium (D) No reaction

767 Question

If Q > K :

A Shift left | B Shift right | C No shift | D Reaction stops

768 Question

If Q = K :

A Shift left | B Shift right | C System is at equilibrium | D Products dominate

769 Question

According to Le Châtelier's Principle, adding a reactant causes equilibrium to :

A Shift left | B Shift right | C Remain unchanged | D Stop

770 Question

Removing a product causes equilibrium to :

A Shift left | B Shift right | C Stop | D Collapse

771 Question

Adding a product causes equilibrium to :

A Shift left | B Shift right | C Remain unchanged | D Increase K

772 Question

Removing a reactant causes equilibrium to :

A Shift left | B Shift right | C Increase K | D Decrease K

773 Question

For an exothermic reaction : Heat + Products ⇌ Reactants

Increasing temperature causes :

A Shift right | B Shift left | C No shift | D K unchanged

774 Question

For an exothermic reaction, increasing temperature :

A Increases K | B Decreases K | C Does not affect K | D Makes K = 1

775 Question

For an endothermic reaction : Reactants + Heat ⇌ Products Increasing temperature causes :

A) Shift left B) Shift right C) No shift D) K becomes zero

---

776 Question

For an endothermic reaction, increasing temperature :

A) Increases K B) Decreases K C) No effect on K D) Makes K negative

---

777 Question

A catalyst :

A) Changes K B) Changes equilibrium position C) Speeds attainment of equilibrium D) Changes ΔH

---

778 Question

Which change affects the value of K :

A) Catalyst B) Concentration C) Temperature D) Pressure

---

779 Question

For : $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ Increasing pressure causes equilibrium to :

A) Shift right B) Shift left C) Not shift D) Reverse completely

---

780 Question

For : $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$ Increasing pressure causes :

A) Shift left B) Shift right C) No shift D) K changes

---

781 Question

At equilibrium :

A) Molecules stop reacting B) Concentrations stop changing C) Rates become zero D) Products disappear

---

782 Question

Which equilibrium constant uses partial pressures :

A) Ka B) Ksp C) Kp D) Kf

783 Question

For : $CO(g) + H_2O(g) \rightleftharpoons CO_2(g) + H_2(g)$ $K_c = [CO_2][H_2] / [CO][H_2O]$ If all concentrations are doubled :

A) K doubles B) K halves C) K unchanged D) K quadruples

784 Question

For : $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ Δn equals :

A) + 2 B) - 2 C) + 1 D) - 1

785 Question

The relationship between Kp and Kc is :

A) Kp = Kc B) Kp = Kc(RT)^Δn C) Kp = RT/Kc D) Kc = RTKp

786 Question

Which equilibrium is heterogeneous :

A) $H_2 + I_2 \rightleftharpoons 2HI$ B) $CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$ C) $N_2 + O_2 \rightleftharpoons 2NO$ D) $H_2 + Cl_2 \rightleftharpoons 2HCl$

787 Question

For the equilibrium : $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$ The equilibrium constant expression is :

A) $[HI]/([H_2][I_2])$ B) $[HI]^2/([H_2][I_2])$ C) $[H_2][I_2]/[HI]^2$ D) $[HI]/([H_2]^2[I_2])$

788 Question

For the equilibrium : $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ If $K_c = 16$ and $[SO_2] = 0.50$ M $[O_2] = 0.25$ M
Then $[SO_3]$ at equilibrium is :

A) 0.50 M B) 1.00 M C) 2.00 M D) 4.00 M

789 Question

For the reaction : $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ If $K_c = 0.50$ and the equilibrium concentrations are $[N_2] = 1.0$ M $[H_2] = 2.0$ M
Then $[NH_3]$ is :

A) 1.0 M B) 2.0 M C) 4.0 M D) 0.5 M

790 Question

If Kc = 1000 for a reaction, the reverse reaction has :

A) K = 1000 B) K = 1/1000 C) K = 2000 D) $K = 10^6$

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791 Question

If a reaction equation is doubled, the new equilibrium constant becomes :

A) K/2 B) 2K C) K^2 D) √K

792 Question

If a reaction equation is divided by 2, the new equilibrium constant becomes :

A) K^2 B) √K C) 2K D) 1/K

793 Question

Which species is omitted from the equilibrium expression :

A) $CO_2(g)$ B) NaCl(aq) C) $CaCO_3(s)$ D) $H^+(aq)$

794 Question

For the equilibrium : $CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$ Kc is equal to :

A) $[CaO][CO_2]/[CaCO_3]$ B) $[CO_2]$ C) $[CaCO_3]/[CO_2]$ D) $[CaO][CO_2]$

795 Question

Consider the exothermic equilibrium:$2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ + heatIncreasing temperature will :

A) Shift right B) Shift left C) Have no effect D) Increase K

796 Question

Consider the endothermic equilibrium:heat + $N_2O_4(g) \rightleftharpoons 2NO_2(g)$Increasing temperature will :

A) Shift left B) Shift right C) Have no effect D) Decrease K

797 Question

Which change affects the value of K :

A) Concentration change B) Pressure change C) Catalyst addition D) Temperature change

798 Question

For the equilibrium : $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ Increasing pressure will :

A) Shift right B) Shift left C) Not affect equilibrium D) Increase K

799 Question

For the equilibrium : $2NO_2(g) \rightleftharpoons N_2O_4(g)$ Increasing volume will :

A) Shift right B) Shift left C) Have no effect D) Change K

---

800 Question

For the equilibrium : $2CO(g) + O_2(g) \rightleftharpoons 2CO_2(g)$ If the concentration of CO is tripled while O_2 remains constant, the reaction quotient Q becomes :

A) 3Q B) 6Q C) 9Q D) 27Q

---

801 Question

For the equilibrium : $2NO(g) + Cl_2(g) \rightleftharpoons 2NOCl(g)$ The equilibrium constant expression is :

A) $[NOCl]^2 / [NO]^2[Cl_2]$ B) $[NOCl] / [NO][Cl_2]$ C) $[NO]^2[Cl_2] / [NOCl]$ D) $[NOCl]^2 / [NO][Cl_2]$

---

802 Question

For the reaction : $2A(g) \rightleftharpoons B(g)$ If Kc = 64, the equilibrium constant for : $B(g) \rightleftharpoons 2A(g)$ is :

A) 64 B) 8 C) 1/64 D) 1/8

---

803 Question

If Kc = 49 for a reaction, the equilibrium constant for half the reaction is :

A) 7 B) 14 C) 24.5 D) 98

---

804 Question

For the equilibrium : $H_2(g) + CO_2(g) \rightleftharpoons H_2O(g) + CO(g)$ Initially : $[H_2] = 2.0\ M [CO_2] = 1.0\ M\ [H_2O] = 0.50\ M\ [CO] = 0.50\ M$ The reaction quotient Q is :

A) 0.125 B) 0.250 C) 0.500 D) 1.000

---

805 Question

For : $2SO_3(g) \rightleftharpoons 2SO_2(g) + O_2(g)$ Decreasing volume causes equilibrium to :

A) Shift left B) Shift right C) No shift D) Decrease K

---

806 Question

For the equilibrium : $Fe^{3+}(aq) + SCN^-(aq) \rightleftharpoons FeSCN^{2+}(aq)$ Adding SCN^- causes equilibrium to :

A) Shift left B) Shift right C) Not shift D) Decrease K

807 Question

Which system has the largest product yield :

(A) K = 0.001 (B) K = 0.1 (C) K = 10 (D) K = 10,000

808 Question

For : $CaSO_4(s) \rightleftharpoons Ca^{2+}(aq) + SO_4^{2-}(aq)$ The equilibrium constant expression is :

(A) $[Ca^{2+}][SO_4^{2-}]$ (B) $[CaSO_4]$ (C) $[Ca^{2+}]$ (D) $[SO_4^{2-}]$

809 Question

Which substance does not appear in the equilibrium expression :

(A) $H^+(aq)$ (B) $NH_3(g)$ (C) NaCl(s) (D) $Cl^-(aq)$

810 Question

If Q = 0.02 and K = 5.0 :

(A) Shift left (B) Shift right (C) At equilibrium (D) K decreases

811 Question

If Q = 20 and K = 5.0 :

(A) Shift left (B) Shift right (C) At equilibrium (D) K increases

812 Question

Consider : $2NOBr(g) \rightleftharpoons 2NO(g) + Br_2(g)$ Adding Br_2 causes :

(A) Shift left (B) Shift right (C) No shift (D) Increase K

813 Question

For : $A(g) + B(g) \rightleftharpoons C(g)$ If pressure increases :

(A) Shift left (B) Shift right (C) No shift (D) K decreases

814 Question

Which equilibrium would not shift when volume changes :

(A) $N_2 + 3H_2 \rightleftharpoons 2NH_3$ (B) $PCl_5 \rightleftharpoons PCl_3 + Cl_2$ (C) $CO + H_2O \rightleftharpoons CO_2 + H_2$ (D) $2SO_2 + O_2 \rightleftharpoons 2SO_3$

815 Question

For : $2A(g) \rightleftharpoons 3B(g)$ Increasing volume shifts equilibrium :

A Left B Right C No shift D Depends on K

816 Question

For : $3A(g) \rightleftharpoons B(g)$ Increasing pressure shifts equilibrium :

A Left B Right C No shift D Depends on temperature

817 Question

Which quantity can have different values during the reaction but equals K at equilibrium :

A ΔH B Q C Temperature D Pressure

818 Question

If Kp = Kc, then Δn is :

A - 1 B 0 C + 1 D + 2

819 Question

For : $CO(g) + Cl_2(g) \rightleftharpoons COCl_2(g)$ Increasing pressure causes :

A Shift left B Shift right C No shift D K decreases

820 Question

The equilibrium constant for a reaction depends on :

A Catalyst B Initial concentration C Temperature D Volume

821 Question

For : $2NO_2(g) \rightleftharpoons N_2O_4(g)$ Adding inert gas at constant volume :

A Shift left B Shift right C No shift D Increase K

822 Question

If a reaction mixture contains excess products compared with equilibrium :

A Q < K B Q > K C Q = K D K = 0

823 Question

If a reaction mixture contains too many reactants :

A) Q < K B) Q > K C) Q = K D) K = 1

824 Question

For : $2H_2S(g) \rightleftharpoons 2H_2(g) + S_2(g)$ Increasing pressure shifts equilibrium :

A) Left B) Right C) No shift D) Depends on K

825 Question

The value of K is :

A) Always greater than 1 B) Always less than 1 C) Always positive D) Can be negative

826 Question

If K = 81, then K for the reverse reaction is :

A) 81 B) 9 C) 1/81 D) 1/9

827 Question

If K = 16, the equilibrium constant for half the reaction is :

A) 2 B) 4 C) 8 D) 32

828 Question

Consider the equilibrium : $A(g) + B(g) \rightleftharpoons C(g)$ Initially : [A] = 1.00 M [B] = 1.00 M [C] = 0.00 M At equilibrium, [C] = 0.30 M.
The equilibrium concentration of A is :

A) 0.30 M B) 0.70 M C) 1.30 M D) 0.50 M

829 Question

Using Question 828, the equilibrium concentration of B is :

A) 0.30 M B) 0.50 M C) 0.70 M D) 1.00 M

830 Question

Using Question 828, Kc is :

A) 0.61 B) 0.43 C) 1.25 D) 2.04

831 Question

For the equilibrium : $2A(g) \rightleftharpoons B(g)$ Initially : [A] = 2.00 M [B] = 0At equilibrium, [B] = 0.40 M.
The equilibrium concentration of A is :

A) 1.20 M B) 1.60 M C) 0.80 M D) 1.00 M

---

832 Question

Using Question 831, Kc equals :

A) 0.28 B) 0.50 C) 1.00 D) 2.50

---

833 Question

For : $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ If extra NH_3 is added :

A) Q decreases B) Q increases C) K increases D) K decreases

---

834 Question

After the change in Question 833, equilibrium shifts :

A) Right B) Left C) Not at all D) Depends on catalyst

---

835 Question

For : $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$ If pressure increases, equilibrium shifts :

A) Left B) Right C) No shift D) K decreases

---

836 Question

Which equilibrium is most affected by pressure :

A) $H_2 + I_2 \rightleftharpoons 2HI$ B) $CO + H_2O \rightleftharpoons CO_2 + H_2$ C) $N_2 + 3H_2 \rightleftharpoons 2NH_3$ D) $H_2 + Cl_2 \rightleftharpoons 2HCl$

---

837 Question

For : $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ If O_2 is removed :

A) Shift left B) Shift right C) No shift D) Increase K

---

838 Question

Which change decreases product formation in an exothermic equilibrium :

A) Cooling B) Removing products C) Heating D) Increasing pressure

839 Question

For : $A(g) \rightleftharpoons B(g)$ K = 100, The equilibrium mixture contains predominantly :

A) A B) B C) Equal amounts D) No products

840 Question

For : $A(g) \rightleftharpoons B(g)$ K = 0.001, The equilibrium mixture contains predominantly :

A) A B) B C) Equal amounts D) Catalyst

841 Question

The reaction quotient is calculated exactly like :

A) Rate law B) K expression C) Arrhenius equation D) Ideal gas law

842 Question

If Q = 0.50 and K = 5.0 :

A) Shift left B) Shift right C) At equilibrium D) No products form

843 Question

Which equilibrium constant corresponds to concentration terms :

A) Kp B) Kc C) Ka D) Ksp

844 Question

Which equilibrium constant corresponds to gas pressures :

A) Kp B) Kc C) Ka D) Ksp

845 Question

For : $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ Δn equals :

A) - 2 B) - 1 C) + 1 D) + 2

846 Question

Because Δn is negative in Question 845 :

A) Kp > Kc B) Kp < Kc C) Kp = Kc D) No relationship exists

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847 Question

For : $AgCl(s) \rightleftharpoons Ag^+(aq) + Cl^-(aq)$ The equilibrium expression is :

A) $[Ag^+][Cl^-]$ B) $[AgCl]$ C) $[Ag^+]$ D) $[Cl^-]$

---

848 Question

Which species never appears in an equilibrium constant expression :

A) Gases B) Aqueous ions C) Pure solids D) Dissolved molecules

---

849 Question

For : $2A(g) \rightleftharpoons B(g)$ If K = 25,K for : $B(g) \rightleftharpoons 2A(g)$ is :

A) 25 B) 5 C) 1/25 D) 1/5

---

850 Question

f K = 36,K for half the reaction equals :

A) 3 B) 6 C) 18 D) 72

---

851 Question

For : $2NO(g) + O_2(g) \rightleftharpoons 2NO_2(g)$ Adding NO shifts equilibrium :

A) Left B) Right C) No shift D) Depends on K

---

852 Question

For Question 851, removing NO_2 shifts equilibrium :

A) Left B) Right C) No shift D) Decreases K

---

853 Question

Increasing temperature in an endothermic equilibrium :

A) Favors reactants B) Favors products C) Has no effect D) Decreases K

---

854 Question

Decreasing temperature in an endothermic equilibrium :

A) Favors reactants B) Favors products C) No effect D) Increases K

855 Question

Which factor changes K :

A) Concentration B) Pressure C) Catalyst D) Temperature

856 Question

Which equilibrium would show no pressure effect :

A) $N_2 + 3H_2 \rightleftharpoons 2NH_3$ B) $PCl_5 \rightleftharpoons PCl_3 + Cl_2$ C) $H_2 + I_2 \rightleftharpoons 2HI$ D) $2SO_2 + O_2 \rightleftharpoons 2SO_3$

857 Question

For : $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$ Δn equals :

A) - 1 B) 0 C) + 1 D) + 2

858 Question

Therefore for Question 857 :

A) Kp > Kc B) Kp < Kc C) Kp = Kc D) Impossible to compare

859 Question

For : $A(g) \rightleftharpoons B(g)$ If more A is added :

A) Q increases B) Q decreases C) K increases D) K decreases

860 Question

After Question 859 :

A) Shift left B) Shift right C) No shift D) Equilibrium permanently

861 Question

At equilibrium :

A) Q > K B) Q < K C) Q = K D) K = 0

862 Question

If Kc = 49 for a reaction, Kc for half the reaction is :

A) 3.5 B) 7 C) 14 D) 24.5

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863 Question

For the equilibrium : $A(g) + B(g) \rightleftharpoons C(g)$ Initially : [A] = 1.50 M [B] = 1.50 M [C] = 0.00 M At equilibrium, [C] = 0.50 M.
The equilibrium concentration of A is :

A) 0.50 M B) 1.00 M C) 1.50 M D) 2.00 M

---

864 Question

Using Question 863, the equilibrium concentration of B is :

A) 0.50 M B) 1.00 M C) 1.50 M D) 2.00 M

---

865 Question

Using Question 864, Kc equals :

A) 0.25 B) 0.50 C) 1.00 D) 2.00

---

866 Question

For : $2A(g) \rightleftharpoons B(g)$ Initially : [A] = 3.00 M [B] = 0.00 M At equilibrium, [B] = 0.60 M.
The equilibrium concentration of A is :

A) 1.20 M B) 1.80 M C) 2.40 M D) 2.80 M

---

867 Question

Using Question 866, Kc equals :

A) 0.185 B) 0.250 C) 0.500 D) 1.000

---

868 Question

For : $N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$ At equilibrium : $[N_2] = 0.40$ M $[O_2] = 0.20$ M [NO] = 0.80 M, Kc equals :

A) 2 B) 4 C) 8 D) 16

---

869 Question

For : $2NO(g) \rightleftharpoons N_2(g) + O_2(g)$ Using Question 868, Kc equals :

A) 8 B) 4 C) 1/8 D) 1/4

---

870 Question

If Kc = 0.04 for a reaction, Kc for the reverse reaction is :

A) 0.04 B) 4 C) 0.25 D) 50

871 Question

For : $A(g) + B(g) \rightleftharpoons 2C(g)$ Initially : [A] = 2.0 M [B] = 1.0 M [C] = 0.0 M, At equilibrium, [C] = 0.80 M.
The equilibrium concentration of A is :

A) 1.20 M B) 1.60 M C) 0.80 M D) 0.40 M

---

872 Question

Using Question 871, [B]eq equals :

A) 0.20 M B) 0.40 M C) 0.60 M D) 0.80 M

---

873 Question

Using Question 871, Kc equals :

A) 0.67 B) 1.00 C) 1.33 D) 2.00

---

874 Question

For : $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$ Increasing pressure causes :

A) More PCl_5 B) More PCl_3 C) More Cl_2 D) No change

---

875 Question

For the equilibrium in Question 874, increasing volume causes :

A) More PCl_5 B) More products C) No change D) K increases

"في عالمي كل شيء له تفاعل"

760	759	758	757	756	755	754	753	752	751
C	C	B	A	B	B	B	B	A	B
770	769	768	767	766	765	764	763	762	761
B	B	C	A	B	B	B	C	C	B
780	779	778	777	776	775	774	773	772	771
C	B	C	C	A	B	B	B	A	A
790	789	788	787	786	785	784	783	782	781
B	B	B	B	B	B	B	C	C	B
800	799	798	797	796	795	794	793	792	791
C	B	B	D	B	B	B	C	B	C
810	809	808	807	806	805	804	803	802	801
B	C	A	D	B	A	A	A	C	A
820	819	818	817	816	815	814	813	812	811
C	B	B	B	B	B	C	B	A	A
830	829	828	827	826	825	824	823	822	821
A	C	B	B	C	C	A	A	B	C
840	839	838	837	836	835	834	833	832	831
A	B	C	A	C	A	B	B	A	A
850	849	848	847	846	845	844	843	842	841
B	C	C	A	B	A	A	B	B	B
860	859	858	857	856	855	854	853	852	851
B	B	C	B	C	D	A	B	B	B
870	869	868	867	866	865	864	863	862	861
C	C	C	A	B	B	B	B	B	C

875	874	873	872	871
B	A	A	C	B

CHAPTER EIGHT

Acids and Bases

مع IQ الطلاب بأمان

الفُل يعني وسيم

الطحن يااااا وسيم

علامتك مضمونة مع وسيم ولد عبدربه

غير العلامة الكاملة ما بنقبل

الكيمياء لعبة، واحنا قد اللعب

بنك الاسئلة جهتك الأخيرة نحو الفل

سهل تجيب العلامة العالية

بس صعب تجيب العلامة الكاملة وانت مش من طلاب ولد عبدربه

876 Question

According to the Brønsted–Lowry theory, an acid is a substance that :

A) Accepts a proton B) Donates a proton C) Accepts an electron pair D) Produces OH^- only

---

877 Question

According to the Brønsted–Lowry theory, a base is a substance that :

A) Donates H^+ B) Produces H_2 C) Accepts H^+ D) Produces H^+

---

878 Question

Which of the following is a Brønsted–Lowry acid :

A) NH_3 B) OH^- C) HCl D) CO_3^{2-}

---

879 Question

Which of the following is a Brønsted–Lowry base :

A) HNO_3 B) H_2SO_4 C) NH_3 D) $HClO_4$

---

880 Question

In the reaction : $HCl + H_2O \rightleftharpoons H_3O^+ + Cl^-$ The acid is :

A) H_2O B) H_3O^+ C) Cl^- D) HCl

---

881 Question

In the reaction : $HCl + H_2O \rightleftharpoons H_3O^+ + Cl^-$ The base is :

A) H_2O B) H_3O^+ C) HCl D) Cl^-

---

882 Question

In the reaction : $NH_3 + H_2O \rightleftharpoons NH_4^+ + OH^-$ The conjugate acid is :

A) NH_3 B) H_2O C) NH_4^+ D) OH^-

---

883 Question

In the reaction : $NH_3 + H_2O \rightleftharpoons NH_4^+ + OH^-$ The conjugate base is :

A) NH_4^+ B) NH_3 C) H_2O D) OH^-

884 Question

Which pair is a conjugate acid-base pair :

A) HCl / Cl^- B) HCl / NaCl C) H_2O / NaOH D) NH_3 / $NaNH_2$

885 Question

Which species is amphoteric :

A) H_2O B) NaCl C) CH_4 D) O_2

886 Question

The Arrhenius definition states that acids :

A) Produce OH^- in water B) Produce H^+ in water C) Accept electrons D) Donate electrons

887 Question

According to Arrhenius, bases :

A) Produce H^+ B) Accept H^+ C) Produce OH^- D) Donate electrons

888 Question

Which is a strong acid :

A) HF B) CH_3COOH C) HCl D) HCN

889 Question

Which is a weak acid :

A) HBr B) HNO_3 C) $HClO_4$ D) CH_3COOH

890 Question

Which acid is completely ionized in water :

A) HF B) HCl C) HCN D) CH_3COOH

891 Question

Which base is strong :

A) NH_3 B) KOH C) CH_3NH_2 D) NH_4OH

892 Question

Which base is weak :

A) NaOH B) KOH C) $Ba(OH)_2$ D) NH_3

---

893 Question

The pH of a neutral solution at 25°C is :

A) 0 B) 1 C) 7 D) 14

---

894 Question

A solution with pH = 3 is :

A) Neutral B) Basic C) Acidic D) Amphoteric

---

895 Question

A solution with pH = 11 is :

A) Acidic B) Neutral C) Basic D) Amphoteric

---

896 Question

The relationship between pH and $[H^+]$ is :

A) $pH = \log[H^+]$ B) $pH = -\log[H^+]$ C) $pH = 14 + \log[H^+]$ D) $pH = [H^+]$

---

897 Question

If $[H^+] = 1.0 \times 10^{-3}$ M, the pH is :

A) 3 B) 11 C) 7 D) 1

---

898 Question

If $[H^+] = 1.0 \times 10^{-7}$ M, the pH is :

A) 1 B) 7 C) 14 D) 0

---

899 Question

If pH = 5, then $[H^+]$ equals :

A) 1×10^{-5} M B) 1×10^{-7} M C) 1×10^{-9} M D) 5 M

900 Question

The pOH of a solution with pH = 4 is :

A) 4 B) 10 C) 14 D) 7

901 Question

The relationship between pH and pOH at 25°C is :

A) pH × pOH = 14 B) pH + pOH = 14 C) pH – pOH = 14 D) pH/pOH = 14

902 Question

If pOH = 2, the pH equals :

A) 2 B) 10 C) 12 D) 14

903 Question

The ion-product constant for water is :

A) Ka B) Kb C) Kw D) Ksp

904 Question

At 25°C, Kw equals :

A) 1×10^{-7} B) 1×10^{-14} C) 1×10^{7} D) 14

905 Question

If $[OH^-] = 1 \times 10^{-4}$ M, pOH equals :

A) 4 B) 10 C) 7 D) 14

906 Question

If $[OH^-] = 1 \times 10^{-4}$ M, pH equals :

A) 4 B) 10 C) 7 D) 14

907 Question

Which acid has the largest Ka :

A) Strongest acid B) Weakest acid C) Neutral acid D) Amphoteric acid

908 Question

A larger Ka means :

(A) Less ionization (B) More ionization (C) No ionization (D) Lower acidity

909 Question

Which acid is stronger :

(A) $Ka = 10^{-2}$ (B) $Ka = 10^{-5}$ (C) $Ka = 10^{-8}$ (D) $Ka = 10^{-10}$

910 Question

The conjugate base of HSO_4^- is :

(A) H_2SO_4 (B) SO_4^{2-} (C) H_3O^+ (D) OH^-

911 Question

The conjugate acid of NH_3 is :

(A) NH_2^- (B) NH_4^+ (C) N_2H_4 (D) OH^-

912 Question

In a strong acid–strong base titration, the pH at equivalence point is :

(A) 3 (B) 5 (C) 7 (D) 9

913 Question

Which acid is monoprotic :

(A) H_2SO_4 (B) H_3PO_4 (C) HCl (D) H_2CO_3

914 Question

Which acid is diprotic :

(A) HCl (B) HNO_3 (C) H_2SO_4 (D) $HClO_4$

915 Question

Which acid is triprotic :

(A) H_3PO_4 (B) HF (C) HBr (D) HCl

916 Question

How many moles of H^+ can one mole of H_3PO_4 donate :

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

917 Question

Which species can act as both acid and base :

A) SO_4^{2-} B) HSO_4^- C) Na^+ D) Cl^-

918 Question

For a weak acid :

A) Ka is very large B) Ionization is complete C) Ionization is partial D) pH = 7

919 Question

For a weak base :

A) Kb is very large B) Ionization is complete C) Ionization is partial D) pOH = 0

920 Question

Which solution is the most acidic :

A) pH = 1 B) pH = 3 C) pH = 5 D) pH = 7

921 Question

Which solution is the most basic :

A) pH = 8 B) pH = 10 C) pH = 12 D) pH = 14

922 Question

For a weak acid HA : $HA \rightleftharpoons H^+ + A^-$ The acid dissociation constant expression is :

A) $Ka = [HA]/[H^+][A^-]$ B) $Ka = [H^+][A^-]/[HA]$ C) $Ka = [H^+]/[HA]$ D) $Ka = [A^-]/[HA]$

923 Question

A weak acid has :

A) Large Ka B) Small Ka C) Ka = 1 D) Ka = 0

924 Question

Which acid is strongest :

A) $Ka = 1 \times 10^{-2}$ B) $Ka = 1 \times 10^{-5}$ C) $Ka = 1 \times 10^{-8}$ D) $Ka = 1 \times 10^{-12}$

925 Question

The base dissociation constant for : $NH_3 + H_2O \rightleftharpoons NH_4^+ + OH^-$ is :

A) $[NH_3]/[NH_4^+][OH^-]$ B) $[NH_4^+][OH^-]/[NH_3]$ C) $[OH^-]/[NH_3]$ D) $[NH_4^+]/[OH^-]$

926 Question

Which base is strongest :

A) $Kb = 10^{-2}$ B) $Kb = 10^{-5}$ C) $Kb = 10^{-8}$ D) $Kb = 10^{-10}$

927 Question

For a conjugate acid-base pair :

A) $Ka \times Kb = Kw$ B) $Ka + Kb = Kw$ C) $Ka/Kb = Kw$ D) $Ka = Kb$

928 Question

At 25°C : Kw equals :

A) 1×10^{-7} B) 1×10^{-14} C) 14 D) 7

929 Question

If $Ka = 1 \times 10^{-5}$, then Kb of its conjugate base equals :

A) 1×10^{-9} B) 1×10^{-14} C) 1×10^{5} D) 1×10^{-19}

930 Question

The pKa of an acid is :

A) log Ka B) -log Ka C) log Kb D) -log Kb

931 Question

If $Ka = 1 \times 10^{-4}$, pKa equals :

A) 2 B) 3 C) 4 D) 5

932 Question

Which acid has the lowest pKa :

A) Strongest acid B) Weakest acid C) Neutral acid D) Amphoteric acid

---

933 Question

A solution has $[H^+] = 1.0 \times 10^{-2}$ M. The pH is :

A) 1 B) 2 C) 12 D) 14

---

934 Question

A solution has $[H^+] = 1.0 \times 10^{-5}$ M. The pH is :

A) 5 B) 9 C) 7 D) 10

---

935 Question

A solution has $[OH^-] = 1.0 \times 10^{-3}$ M. The pOH is :

A) 3 B) 11 C) 7 D) 14

---

936 Question

A solution has $[OH^-] = 1.0 \times 10^{-3}$ M. The pH is :

A) 3 B) 7 C) 11 D) 14

---

937 Question

A solution has pH = 4. What is $[H^+]$:

A) 1×10^{-4} M B) 1×10^{-10} M C) 1×10^{-7} M D) 4 M

---

938 Question

A solution has pH = 9. What is $[OH^-]$:

A) 1×10^{-9} M B) 1×10^{-7} M C) 1×10^{-5} M D) 1×10^{-14} M

---

939 Question

If pOH = 2, the pH is :

A) 2 B) 10 C) 12 D) 14

940 Question

If pH = 11, the pOH is :

A) 3 B) 11 C) 14 D) 1

---

941 Question

A solution has $[H^+] = 5.0 \times 10^{-4}$ M. The pH is closest to :

A) 2.30 B) 3.30 C) 4.30 D) 5.30

---

942 Question

A solution has $[OH^-] = 2.0 \times 10^{-5}$ M. The pOH is closest to :

A) 3.70 B) 4.70 C) 5.70 D) 6.70

---

943 Question

For a weak acid HA : $HA \rightleftharpoons H^+ + A^-$ If $K_a = 1.0 \times 10^{-5}$, the acid is :

A) Strong B) Weak C) Neutral D) Amphoteric

---

944 Question

Which acid has the smallest pKa :

A) Strongest acid B) Weakest acid C) Neutral acid D) Amphoteric acid

---

945 Question

If $K_a = 1 \times 10^{-3}$, pKa equals :

A) 1 B) 3 C) 11 D) 14

---

946 Question

The conjugate base of a strong acid is generally :

A) Strong B) Weak C) Neutral D) Amphoteric

---

947 Question

The conjugate acid of a strong base is generally :

A) Strong B) Weak C) Neutral D) Amphoteric

948 Question

If Ka = 1×10^{-6}, Kb of its conjugate base equals :

A) 1×10^{-8} B) 1×10^{-14} C) 1×10^{-20} D) 1×10^{-6}

949 Question

If Kb = 1×10^{-4}, Ka of its conjugate acid equals :

A) 1×10^{-10} B) 1×10^{-4} C) 1×10^{-14} D) 1×10^{10}

950 Question

Which species is the strongest base :

A) $Kb = 10^{-2}$ B) $Kb = 10^{-5}$ C) $Kb = 10^{-8}$ D) $Kb = 10^{-10}$

951 Question

A 0.0100 M HCl solution has a pH of :

A) 1.00 B) 2.00 C) 3.00 D) 4.00

952 Question

A 0.00250 M HNO_3 solution has a pH closest to :

A) 1.60 B) 2.60 C) 3.60 D) 4.60

953 Question

What is the pH of a 0.150 M NaOH solution :

A) 0.82 B) 12.18 C) 13.18 D) 13.82

954 Question

A solution has $[OH^-] = 3.2 \times 10^{-4}$ M. The pH is :

A) 3.51 B) 10.51 C) 11.51 D) 11.51

955 Question

A 0.10 M weak acid HA has Ka = 1.0×10^{-5}. The equilibrium $[H^+]$ is approximately :

A) 1.0×10^{-5} M B) 1.0×10^{-4} M C) 1.0×10^{-3} M D) 1.0×10^{-2} M

956 Question

For Question 955, the pH is :

A) 2.00 B) 3.00 C) 4.00 D) 5.00

---

957 Question

A 0.20 M HF solution has Ka = 6.8×10^{-4}. The equilibrium $[H^+]$ is closest to :

A) 0.0117 M B) 0.00117 M C) 0.117 M D) 0.068 M

---

958 Question

The pH of the solution in Question 957 is closest to :

A) 1.93 B) 2.93 C) 3.93 D) 4.93

---

959 Question

A 0.050 M NH_3 solution has Kb = 1.8×10^{-5}. The equilibrium $[OH^-]$ is approximately :

A) 9.5×10^{-4} M B) 9.5×10^{-5} M C) 9.5×10^{-3} M D) 9.5×10^{-2} M

---

960 Question

The pH of the solution in Question 959 is approximately :

A) 9.98 B) 10.98 C) 11.98 D) 12.98

---

961 Question

What is the percent ionization of a 0.10 M acid if $[H^+] = 1.0 \times 10^{-3}$ M :

A) 0.1% B) 1% C) 10% D) 100%

---

962 Question

A weak acid has : Ka = 4.0×10^{-6} , Concentration = 0.25 M, The equilibrium $[H^+]$ is closest to :

A) 1.0×10^{-3} M B) 5.0×10^{-4} M C) 2.0×10^{-5} M D) 1.0×10^{-2} M

---

963 Question

The pH in Question 962 is :

A) 2.99 B) 3.99 C) 4.99 D) 5.99

964 Question

A weak base has : Kb = 9.0×10^{-6} , Concentration = 0.40 M, The equilibrium $[OH^-]$ is closest to :

A) 1.9×10^{-3} M B) 1.9×10^{-4} M C) 1.9×10^{-2} M D) 1.9×10^{-5} M

965 Question

The pH in Question 964 is approximately :

A) 10.28 B) 11.28 C) 12.28 D) 13.28

966 Question

50.0 mL of 0.200 M HCl contains how many moles of H^+ :

A) 0.0010 B) 0.0100 C) 0.100 D) 1.00

967 Question

How many mL of 0.100 M NaOH are required to neutralize Question 966 :

A) 25.0 B) 50.0 C) 100.0 D) 200.0

968 Question

For a weak acid : Ka = 1.0×10^{-8} , Concentration = 0.10 M, The pH is closest to :

A) 2.50 B) 3.50 C) 4.50 D) 5.50

969 Question

A solution has pH = 3.25.The hydrogen ion concentration is :

A) 5.6×10^{-4} M B) 5.6×10^{-3} M C) 5.6×10^{-5} M D) 5.6×10^{-2} M

970 Question

Which solution has the highest pH :

A) 0.10 M HCl B) 0.010 M HCl C) 0.0010 M HCl D) 0.10 M NaOH

971 Question

Which solution has the lowest pH :

A) 0.10 M HNO_3 B) 0.10 M NH_3 C) 0.10 M NaOH D) Pure water

972 Question

For a weak acid : $HA \rightleftharpoons H^+ + A^-$ If the concentration decreases, the percent ionization generally :

A) Decreases B) Increases C) Remains constant D) Becomes zero

973 Question

A 0.0010 M HCl solution has pH :

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

974 Question

If pH changes from 3 to 5, $[H^+]$ changes by a factor of :

A) 2 B) 10 C) 100 D) 1000

975 Question

If pOH = 4.50, pH equals :

A) 8.50 B) 9.50 C) 10.50 D) 11.50

976 Question

Which acid would have the largest percent ionization :

A) $Ka = 10^{-2}$ B) $Ka = 10^{-5}$ C) $Ka = 10^{-7}$ D) $Ka = 10^{-9}$

977 Question

A solution contains equal concentrations of NH_3 and NH_4^+.The pH equals :

A) pKa B) pKb C) pOH D) pKw

978 Question

A 0.200 M weak acid HA has $Ka = 2.0 \times 10^{-5}$.The equilibrium concentration of H^+ is closest to :

A) 2.0×10^{-5} M B) 2.0×10^{-4} M C) 2.0×10^{-3} M D) 2.0×10^{-2} M

979 Question

The pH of the solution in Question 978 is :

A) 1.85 B) 2.85 C) 3.85 D) 4.85

980 Question

A 0.500 M weak acid has Ka = 8.0×10^{-6}.The equilibrium $[H^+]$ is approximately :

A) 2.0×10^{-3} M B) 2.0×10^{-4} M C) 2.0×10^{-2} M D) 2.0×10^{-5} M

981 Question

The percent ionization in Question 980 is approximately :

A) 0.4% B) 4% C) 40% D) 0.04%

982 Question

For a weak acid : $HA \rightleftharpoons H^+ + A^-$ If Ka increases by a factor of 100, the approximate $[H^+]$ increases by :

A) 10 times B) 100 times C) 2 times D) 1000 times

983 Question

A 0.300 M NH_3 solution has Kb = 1.8×10^{-5}.The equilibrium $[OH^-]$ is closest to :

A) 2.3×10^{-3} M B) 2.3×10^{-4} M C) 2.3×10^{-2} M D) 2.3×10^{-5} M

984 Question

The pOH of Question 983 is approximately :

A) 1.64 B) 2.64 C) 3.64 D) 4.64

985 Question

The pH of Question 983 is approximately :

A) 9.36 B) 10.36 C) 11.36 D) 12.36

986 Question

A weak base has:Kb = 4.0×10^{-4}Concentration = 0.10 MThe equilibrium $[OH^-]$ is closest to :

A) 6.3×10^{-3} M B) 6.3×10^{-4} M C) 6.3×10^{-2} M D) 6.3×10^{-5} M

987 Question

Acetic acid has Ka = 1.8×10^{-5}.Its conjugate base has Kb equal to :

A) 5.6×10^{-10} B) 5.6×10^{-9} C) 5.6×10^{-8} D) 5.6×10^{-7}

988 Question

For the reaction : $NH_4^+ + H_2O \rightleftharpoons NH_3 + H_3O^+$ NH_4^+ acts as :

A) Acid B) Base C) Catalyst D) Neutral species

989 Question

Which of the following has the highest pH :

A) 0.10 M HCl B) 0.10 M CH_3COOH C) 0.10 M NH_3 D) 0.10 M NH_4Cl

990 Question

Which has the lowest pH :

A) 0.10 M HCl B) 0.10 M CH_3COOH C) 0.10 M NH_4Cl D) Pure water

991 Question

A diprotic acid can donate :

A) One proton B) Two protons C) Three protons D) Four protons

992 Question

H_2SO_4 is :

A) Monoprotic B) Diprotic C) Triprotic D) Amphoteric

993 Question

H_3PO_4 is :

A) Monoprotic B) Diprotic C) Triprotic D) Tetraprotic

994 Question

The species HCO_3^- is :

A) Strong acid only B) Strong base only C) Amphiprotic D) Neutral

995 Question

Which species can both donate and accept a proton :

A) HCO_3^- B) Na^+ C) Cl^- D) NO_3^-

996 Question

A 0.100 M solution of a weak acid HA has a pH of 3.00. The value of Ka is :

(A) 1.0×10^{-7} (B) 1.0×10^{-6} (C) 1.0×10^{-5} (D) 1.0×10^{-4}

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997 Question

A 0.200 M weak acid solution has a pH of 2.70. The concentration of H^+ is :

(A) 2.0×10^{-3} M (B) 1.0×10^{-3} M (C) 5.0×10^{-3} M (D) 2.0×10^{-2} M

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998 Question

A 0.0500 M NH_3 solution has pH = 10.98.The concentration of OH^- is :

(A) 9.5×10^{-4} M (B) 9.5×10^{-5} M (C) 9.5×10^{-3} M (D) 9.5×10^{-2} M

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999 Question

The conjugate acid of a base has Ka = 5.0×10^{-10}.The corresponding Kb is :

(A) 2.0×10^{-5} (B) 5.0×10^{-5} (C) 2.0×10^{-4} (D) 5.0×10^{-4}

1000 Question

HCO_3^- can :

(A) Donate H^+ only (B) Accept H^+ only (C) Donate or accept H^+ (D) Neither donate nor accept

"نُفل يعني وسيم"

"وِلد عبدربه"

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885	884	883	882	881	880	879	878	877	876
A	A	D	C	A	D	C	C	C	B
895	894	893	892	891	890	889	888	887	886
C	C	C	D	B	B	D	C	C	B
905	904	903	902	901	900	899	898	897	896
A	B	C	C	B	B	A	B	A	B
915	914	913	912	911	910	909	908	907	906
A	C	C	C	B	B	A	B	A	B
925	924	923	922	921	920	919	918	917	916
B	A	B	B	D	A	C	C	B	C
935	934	933	932	931	930	929	928	927	926
A	A	B	A	C	B	A	B	A	A
945	944	943	942	941	940	939	938	937	936
B	A	B	B	B	A	C	C	A	C
955	954	953	952	951	950	949	948	947	946
C	B	C	B	B	A	A	A	B	B
965	964	963	962	961	960	959	958	957	956
B	A	A	A	B	B	A	A	A	B
975	974	973	972	971	970	969	968	967	966
B	C	C	B	A	D	A	C	C	B
985	984	983	982	981	980	979	978	977	976
C	B	A	A	A	A	B	C	B	A
995	994	993	992	991	990	989	988	987	986
A	C	C	B	B	A	C	A	A	A

1000	999	998	997	996
C	A	A	A	C