

Practice Test #1 KEY

PART 1			
#	Ans	#	Ans
1	E	11	B
2	C	12	A
3	C	13	C
4	D	14	A
5	B	15	D
6	E	16	C
7	B	17	B
8	C	18	C
9	B	19	B
10	E	20	B

PART 2			
#	Ans	#	Ans
1	B	14	E
2	C	15	D
3	E	16	C
4	B	17	C
5	B	18	B
6	E	19	A
7	D	20	B
8	B	21	D
9	A	22	A
10	D	23	E
11	C	24	C
12	D	25	B
13	A		

PART 3			
#	Ans	#	Ans
1	E	11	A
2	B	12	D
3	D	13	B
4	C	14	C
5	A	15	E
6	B	16	A
7	C	17	B
8	D	18	C
9	A	19	D
10	E	20	E

PART 4			
#	Ans	#	Ans
1	A	14	D
2	B	15	E
3	C	16	D
4	D	17	B
5	E	18	C
6	D	19	A
7	A	20	A
8	B	21	B
9	C	22	C
10	E	23	B
11	A	24	C
12	B	25	B
13	C	26	E

PART 5			
#	Ans	#	Ans
1	A	11	A
2	C	12	E
3	B	13	D
4	D	14	A
5	D	15	B
6	D	16	C
7	E	17	B
8	C	18	D
9	C	19	A
10	B	20	E

Practice Test #2 KEY

#	Ans	#	Ans	#	Ans	#	Ans
1	C	16	A	31	D	46	C
2	A	17	D	32	A	47	D
3	A	18	B	33	A	48	B
4	C	19	B	34	B	49	A
5	D	20	C	35	B	50	B
6	A	21	A	36	A	51	C
7	D	22	A	37	A	52	B
8	D	23	D	38	D	53	D
9	B	24	A	39	A	54	A
10	A	25	D	40	B	55	C
11	D	26	A	41	B	56	B
12	A	27	C	42	D	57	C
13	C	28	C	43	B	58	D
14	C	29	C	44	C	59	C
15	D	30	B	45	C	60	B

Free Response Q's

1a – 4.00 cm x 3.50 cm

b – 1.26×10^{-2} cm

c – 0.263 lb/in³

2a – 2.42 atm

b – 0.0750 mol

c – 0.40 atm

3a – 46.0 J

b – 0.401 kJ

4a – The attractions btwn water vapor particles are strengthening as the liquid is forming

b – The temperature of the surroundings is cooler than that of the container because

the condensation process is exothermic and energy moves from hot to cold, leaving the container

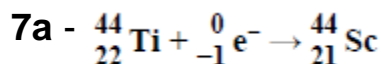
4c – because energy must leave the container, the forming of liquid water is exothermic

5 –

Isotope	Atomic Number	Mass Number	# of Protons
⁶⁹ Zn ²⁺	30	69	30
¹²⁷ Te ²⁻	52	127	52

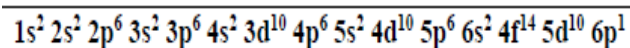
# of Neutrons	# of Electrons	Net Charge
39	28	+2
75	54	-2

6 – 75.8% Cl-35, 24.2% Cl-37



b – 300 years

8a -



b – 3

c – Tl^{3+}

d - $[\text{Xe}] 4f^{14} 5d^{10}$

e – Outer electron of both Tl and Pb are in the 6p subshell. However, Tl has 81 protons, while Pb has 82 protons. Outer electrons are more attracted to a nucleus with more protons, requiring more energy to remove. Because Pb has more protons than Tl, Pb has a higher first ionization energy.

f – 2.7×10^{24} atoms

Practice Test #3 KEY

#	Ans	#	Ans	#	Ans	#	Ans
1	C	19	C	37	D	55	D
2	D	20	D	38	D	56	B
3	D	21	C	39	D	57	B
4	D	22	C	40	C	58	B
5	A	23	A	41	B	59	A
6	B	24	A	42	C	60	C
7	B	25	A	43	C	61	A
8	B	26	D	44	D	62	D
9	A	27	A	45	B	63	A
10	D	28	D	46	C	64	B
11	B	29	B	47	D	65	C
12	B	30	B	48	B	66	A
13	D	31	D	49	C	67	D
14	B	32	B	50	B	68	A
15	D	33	A	51	B	69	B
16	D	34	A	52	B	70	B
17	B	35	A	53	B		
18	A	36	A	54	A		

Free Response Q's

- 1a – ClO₂
 b – ClO₂
 c – 4.52 x 10²² molecules

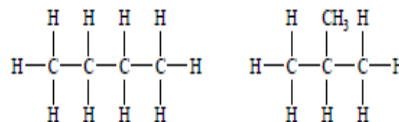
Compound:	CO	CaO
Lewis Structures:	:C#O:	[Ca] ²⁺ [²⁻ Ö:] ²⁻
Type of Solid Formed:	Molecular Solid	Ionic Solid
Inter-Particle Forces	Dipole-dipole Interactions	Ionic Bonds

- 10a – Rate = k[NH₃]²[H₂O₂]¹
 b – 3.6 x 10⁶ M⁻² min⁻¹

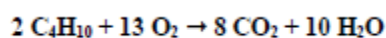
3 –

Compound:	BI ₃	SF ₂
Lewis Structure	<pre> :I: :I: :I: :I: :I: :I: :I:</pre>	<pre> :S:F: :S:F: :S:F:</pre>
Molecular Shape	Trigonal Planar	Bent
Bond Angles	120°	104°
Molecule is	Polar Non-Polar	Polar Non-Polar
Type of IMF:	London Dispersion Forces	Dipole-dipole Interactions

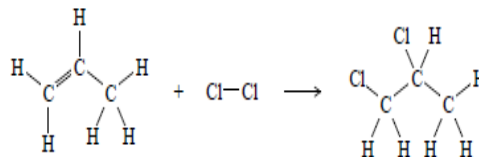
4a –



b –



5 –



6 –

Compound	Cabbage Juice Color [red green purple]	Conductivity [bright dim dark]	Dissociation Equation
(i) HBr	RED	BRIGHT	HBr → H ⁺ + Br ⁻
(ii) Mg(OH) ₂	GREEN	DIM	Mg(OH) ₂ ⇌ Mg ²⁺ + 2 OH ⁻
(iii) NH ₃	GREEN	DIM	NH ₃ + H ₂ O ⇌ NH ₄ ⁺ + OH ⁻

7 – 2.67

- 8a – Pb(s) + 2 HCl(aq) → H₂(g) + PbCl₂(s)
 b – Pb(s) + 2 H⁺ + 2 Cl⁻ → H₂(g) + PbCl₂(s)

- 9a – 2 C₃H₈O(l) + 9 O₂(g) → 6 CO₂(g) + 8 H₂O(l)
 b – 4.53 L
 c – 93.8%
 d – -4039 kJ/mol
 e – 306.5 kJ/mol

- 11a – $K_{eq} = \frac{[\text{HCl}]_{eq}^2}{[\text{H}_2]_{eq}[\text{Cl}_2]_{eq}}$
 b –

$$Q = \frac{[\text{HCl}]^2}{[\text{H}_2][\text{Cl}_2]} = \frac{(0.38)^2}{(0.020)(0.020)} = 361 < 841$$

Because Q < K_{eq}, the reaction will go in the forward direction.

c –

$$[\text{H}_2]_{eq} = [\text{Cl}_2]_{eq} = 0.014 \text{ M}; [\text{HCl}]_{eq} = 0.393 \text{ M}$$

Practice Test #4 KEY

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

Practice Test #5 KEY

PART 1					
#	Ans	#	Ans	#	Ans
1	D	11	E	21	B
2	C_6H_{12} O_2	12	A	22	C
3	D	13	A	23	A
4	C	14	C	24	A
5	A	15	B	25	B
6	D	16	D	26	B
7	C	17	A	27	D
8	D	18	A	28	A
9	D	19	B	29	C
10	D	20	B		

PART 2											
#	Ans	#	Ans	#	Ans	#	Ans	#	Ans	#	Ans
1	B	16	-	31	D	46	A	61	C	76	B
2	C	17	A	32	B	47	B	62	C	77	B
3	C	18	C	33	B	48	A	63	D	78	A
4	C	19	B	34	D	49	A	64	D	79	B
5	A	20	D	35	A	50	B	65	D	80	B
6	C	21	C	36	D	51	A	66	A	81	-
7	B	22	A	37	D	52	C	67	-	82	-
8	D	23	B	38	A	53	B	68	B	83	-
9	C	24	C	39	B	54	B	69	-	84	-
10	A	25	C	40	B	55	C	70	-	85	-
11	B	26	D	41	B	56	B	71	-	86	-
12	B	27	B	42	C	57	B	72	-	87	-
13	C	28	C	43	B	58	C	73	B	88	-
14	D	29	D	44	C	59	A	74	A	89	-
15	C	30	A	45	B	60	A	75	C		

PART 3

#	Ans	#	Ans	#	Ans	#	Ans
1	F	21	B	41	C	61	A
2	F	22	A	42	C	62	C
3	F	23	A	43	A	63	C
4	F	24	C	44	B	64	B
5	T	25	D	45	D	65	A
6	F	26	A	46	C	66	B
7	T	27	B	47	A	67	D
8	T	28	D	48	A	68	B
9	T	29	C	49	C	69	A
10	F	30	A	50	C	70	C
11	D	31	A	51	C	71	C
12	C	32	D	52	D	72	A
13	A	33	A	53	C	73	D
14	B	34	C	54	B	74	B
15	A	35	A	55	B	75	B
16	D	36	D	56	C	76	A
17	D	37	B	57	D	77	B
18	C	38	B	58	A	78	C
19	D	39	B	59	D	79	A
20	D	40	B	60	B		