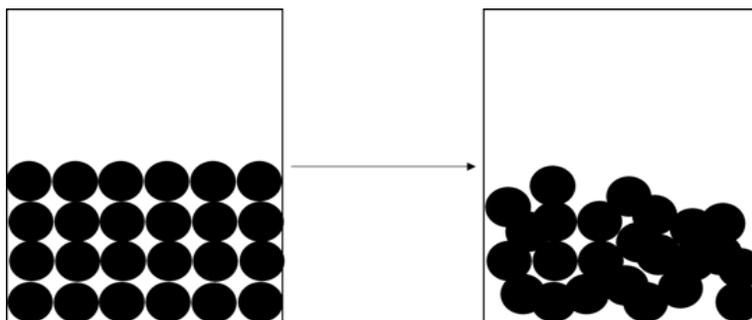


Mock Exam

1.

Melting
Endothermic



2.

c) $\text{N}_2\text{HCH}_2\text{NH}_2$ - most hydrogen bonding

3.

I.
II.
III.
IV.

ctions. ✓

s. ✓

e) I, II, and IV.

4.

$\text{H} < \text{He} < \text{O}_2 < \text{HI}$
 - All only have London dispersion
 - Same IMF \rightarrow \downarrow molecular weight = \downarrow IMF

5.

I. M

II.

III

IV

✓

✓

d. ✓

id. ✓

e) I, II, III, and IV are all correct classifications.

6.

which of the

I.

II.

III

✓

b) II only.

$$\text{pH: } -\log(4.41 \times 10^{-5}) = 4.36$$

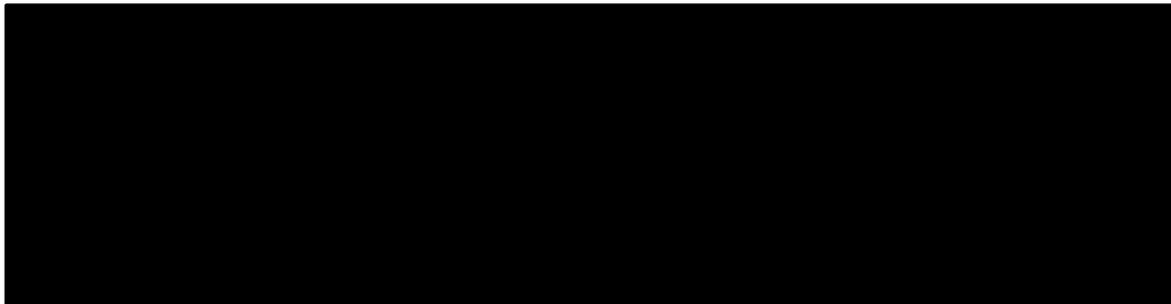
$$\text{pOH: } 14 - 4.36 = 9.64$$

$$[\text{OH}^-]: 10^{-9.64} = 2.29 \times 10^{-10}$$

7.

c) SO_4^{2-} and HPO_4^{2-} - Accept H

8.

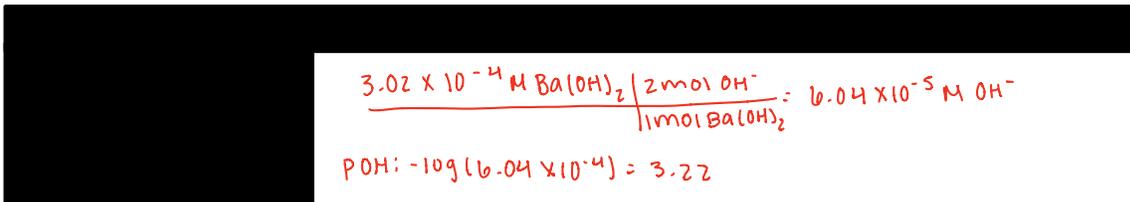


more dissociation = stronger acid

(b) $1 < 2 < 4 < 3$.



9.



$$\frac{3.02 \times 10^{-4} \text{ M Ba(OH)}_2}{1 \text{ mol Ba(OH)}_2} \left| \frac{2 \text{ mol OH}^-}{1 \text{ mol Ba(OH)}_2} \right. = 6.04 \times 10^{-5} \text{ M OH}^-$$

$$\text{POH: } -\log(6.04 \times 10^{-4}) = 3.22$$

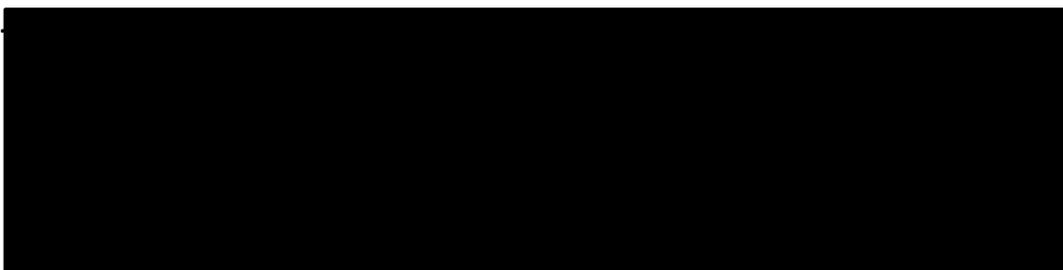
$$\text{PH: } 14 - 3.22 = 10.78$$

(d) $1.66 \times 10^{-11} \text{ M}$.

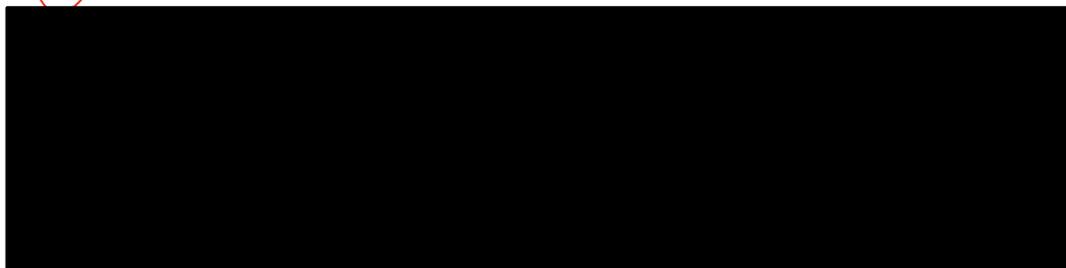


$$[\text{H}_3\text{O}^+]: 10^{-10.78} = 1.66 \times 10^{-11}$$

10.



(a) This model is showing the Arrhenius definition of an acid.



11. [Redacted]

e) II and III.

12. [Redacted]

- I. [Redacted] 02 ✓
- II. [Redacted] ✓
- III. [Redacted] - strong acid ✓
- IV. [Redacted] ✓
- V. [Redacted] ✓

[Redacted]

c) I, II, IV, V.

[Redacted]

13. [Redacted]

Heterogeneous

Homogeneous

[Redacted]

14. [Redacted]

15.

Heterogeneous mixture

16.

$$\text{Ba}(\text{NO}_3)_2 - 261.35 \text{ g/mol}$$

120 mL	1 L	.3 mol	261.35 g	= 9.41 g
1000 mL	1 L	mol	mol	

e) 9.41 g.

17.

$$(0.07)(15) = (2.07)(x)$$

c) 0.507 M.

$$x = 0.507 \text{ M}$$

18.

b) Weak electrolytes only dissociate partially in solution.

c) H_2SO_4 would be considered a strong electrolyte; HF would be considered a weak electrolyte.

d) When comparing a strong electrolyte solution to a nonelectrolyte solution, there will always be more individual particles in the strong electrolyte solution.

e) Strong acids and strong bases are strong electrolytes.

19.

$$\text{H}_2\text{SO}_4 + 2\text{KOH} \rightleftharpoons \text{K}_2\text{SO}_4 + 2\text{H}_2\text{O}$$

40 mL	1 L	.327 mol KOH	1 mol H_2SO_4	1 L	= 0.0279 L
1000 mL	1 L	mol	2 mol KOH	.254 mol H_2SO_4	

e) 0.0279 L

20. [Redacted]

- | | |
|------|----------------------|
| I. | H. |
| II. | ✓ |
| III. | OH) ₂ . ✓ |
| IV. | 3. |

c) II and III.

21. [Redacted]

$$2.3 = (x) 1.2$$

$$M = 1.92$$

22. [Redacted]

$$g \text{ KCl} : \frac{0.345 \text{ mol} \times 74.55 \text{ g}}{1 \text{ mol}} = 25.72 \text{ g}$$

$$\frac{25.72}{25.72 + 123} \times 100 = 17.29\%$$

23. [Redacted]

d) All of the above

24. [Redacted]

$$14 - 3.4 = 10.6$$

25. [Redacted]

$$[\text{H}_3\text{O}^+] : 10^{-3.4} = 3.98 \times 10^{-4}$$

26. [Redacted]

$$[\text{OH}^-] : 10^{-10.6} = 2.51 \times 10^{-11}$$

27.

acidic

28.

- melting
- sublimation
- evaporation

29.

- deposition
- freezing
- condensation

30.

$$\frac{45.3\text{g}}{200.59\text{g}} \times \frac{1\text{mol}}{\text{mol}} \times \frac{65.3\text{kJ}}{\text{mol}} \times \frac{1000\text{J}}{1\text{kJ}} = 1.47 \times 10^4 \text{J}$$