Question	Possible Poir

1. What is the conjugate acid of HS^-?

   - HS_2
   - S^{2-}
   - HS
   - Correct answer: H_2S
   - SOH

2. What is the H^+ concentration in a 5.7×10^{-3} M $Ca(OH)_2$ solution?

   - 5.7×10^{-17} M
   - Correct answer: 8.8×10^{-13} M
   - 8.77×10^{-11} M
   - 3.1×10^{-10} M
   - 1.75×10^{-12} M

3. The pH of a certain solution is 4.5. What is the concentration of $H^+(aq)$ ions in the solution?

   - Correct answer: 3.16×10^{-5} M
   - 3.16×10^{4} M
   - 4.5 M
   - 3.16×10^{-10} M
   - 1.9×10^{19} M

4. The pH of a 0.1 M solution of acid HA is 1.0. Therefore,

   - Correct answer: HA is a strong acid.
   - K_a of HA is 1.
   - K_a of HA is 0.1.
   - K_a of HA is 0.01.
   - HA must be a weak acid; not enough information is given to determine K_a.

5. The pH of a 0.30 M solution of an acid, HA, is 5.20. Calculate K_a of HA.

   - 3.98×10^{-11}
   - 6.3×10^{-6}
   - 7.52×10^{-5}
   - Correct answer: 1.33×10^{-10}

- None of the above

6. What is the pH of a solution prepared by dissolving 0.250 mol of NH_3 in sufficient water to make 1.00 L of solution (K_b NH_3 = 1.8 x 10^{-5})?

- 4.50
- 2.12

Correct answer:

- 11.33
- 2.67
- None of the above

7. What is the pH of a 1.0 M solution of NaCN? [K_a HCN = 4.9 x 10^{-10}]

- 2.3

Correct answer:

- 11.7
- 7.0
- 4.7
- 9.3

8. Calculate the [HS^-] of a 0.33 M solution of H_2S [K_{a1} = 5.7 x 10^{-8}; K_{a2} = 1.2 x 10^{-15}].

Correct answer:

- 1.37 x 10^{-4} M
- 1.88 x 10^{-8} M
- 5.7 x 10^{-8} M
- 1.2 x 10^{-15} M
- 7.55 x 10^{-5} M

9. Which of the following salts will form an acidic solution when dissolved in water?

- NaCl
- $NaNO_2$

Correct answer:

- NH_4NO_3
- NH_4CN
- B and D

10. Which of the following species can act as a Lewis acid?

- NH_3
- F^-
- H_2O

- NH_4^+

Correct answer:
- BF_3

11. What is the percent ionization of a 0.20 M solution of C_6H_5COOH with K_a of $6.5x10^{-5}$?
    - 1.0%

    Correct answer:
    - 1.8%
    - 3%
    - 4.6%

12. Write the formula for the conjugate acid of CO_3^{2-}

    Correct answer:
    - HCO_3^-
    - $H_2CO_3^-$
    - HCO_2^{-2}
    - None of the above

13. Which is the strongest acid?
    - hydrofluoric acid
    - boric acid
    - benzoic acid

    Correct answer:
    - iodic acid

14. Which is the strongest polyprotic acid?

    Correct answer:
    - oxalic
    - tartaric
    - phosphoric
    - phosphorous

15. Predict the pH of an aqueous solution of CsF.
    - acidic
    - neutral

    Correct answer:
    - basic
    - none of the above