

NAME:		ROLL NO:		TIME:	30: MIN
SUB:	Chemistry	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 9 (Acid Base Chemistry)	T. MARKS	24	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x24=24)

- Given the following reaction:** $\text{NH}_3(\text{g}) + \text{H}_2\text{O}(\text{l}) \rightarrow \text{NH}_4^+(\text{aq}) + \text{OH}^-(\text{aq})$

(A) NH_3 is the acid, H_2O is the base (B) NH_3 is the base, H_2O is the acid
 (C) NH_4^+ is the base, OH^- is the acid (D) H_2O is the base, OH^- is the acid
- The PH of $10^{-3} \text{ mol dm}^{-3}$ of an aqueous solution of H_2SO_4 is:**

(A) 3.0 (B) 2.7 (C) 2.0 (D) 1.5
- The solubility product of AgCl is $2.0 \times 10^{-10} \text{ moldm}^{-6}$. The maximum concentration of Ag^+ ions in the solution is:**

(A) $2.0 \times 10^{-10} \text{ moldm}^{-3}$ (B) $1.41 \times 10^{-5} \text{ moldm}^{-3}$
 (C) $1.0 \times 10^{-10} \text{ moldm}^{-3}$ (D) $4.0 \times 10^{-20} \text{ moldm}^{-3}$
- Which indicator is typically used for titrations involving strong acids and strong bases?**

(A) Methyl red (B) Phenolphthalein
 (C) Bromothymol blue (D) Litmus solution
- Which of the following is the conjugate base of water?**

(A) $\text{OH}^-(\text{aq})$ (B) $\text{OH}^+(\text{aq})$ (C) $\text{H}_2\text{O}(\text{l})$ (D) $\text{H}_3\text{O}^+(\text{aq})$
- Which of the following is a Lewis acid but not a Bronsted-Lowry acid?**

(A) HCl (B) NH_3 (C) AlCl_3 (D) H_2O
- In an acid-base titration, the equivalence point is reached when:**

(A) PH of the solution is 7.0
 (B) The indicator changes color.
 (C) Equal volumes of acid and base have been added.
 (D) The reaction stops.
- If the concentration of Cl^- ion in a solution is increased, the solubility of silver chloride (AgCl) will:**

(A) Decrease (B) Increase
 (C) Remain unchanged (D) Become zero
- Which of the following pairs of substances can act as a conjugate acid-base pair according to the Bronsted-Lowry theory?**

(A) HCl and NaOH (B) NH_3 and NH_4^+ (C) H_2O and H_2SO_4 (D) H_2O and CH_4
- If the pH of a solution is 11, what is the $[\text{OH}^-]$ concentration in the solution?**

(A) $1 \times 10^{-3} \text{ M}$ (B) $1 \times 10^{-11} \text{ M}$ (C) $1 \times 10^{-2} \text{ M}$ (D) $1 \times 10^{-14} \text{ M}$
- Which of the following pairs forms a buffer solution?**

(A) HCl and NaCl (B) CH_3COONa and CH_3COOH
 (C) NaOH and HCl (D) NH_3 and Na_2SO_4
- Water cannot act as:**

(A) Lewis acid (B) Lewis base (C) Bronsted acid (D) Bronsted base
- pH of 0.01 M HCl solution is:**

(A) 10^{-2} (B) 10^{+2} (C) 2.0 (D) 1.0

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14. An aqueous solution of ammonium chloride is:

- (A) Basic (B) Acidic (C) Neutral (D) Amphoteric

15. An aqueous solution of which compound is basic.

- (A) Ammonia nitrate (B) Calcium chloride
(C) Ammonia acetate (D) Potassium carbonate

16. If a liquid has a pH of 7 then:

- (A) It must be colourless (B) It has boiling point of 100°C
(C) It must be a solution (D) It must be neutral

17. When air is bubbled through pure water the pH is lowered from 7.0 to 5.6, which gas in the air is responsible for this change.

- (A) Argon (B) Carbon dioxide (C) Nitrogen (D) Oxygen

18. Which of the following oxides is classified incorrectly?

- (A) Zinc oxide (ZnO) amphoteric (B) Carbon dioxide (CO₂) acidic
(C) Carbon monoxide (CO) neutral (D) Lead oxide (PbO) basic

19. If 25cm³ of 1 mole. Dm⁻³ nitric acid is added to 50cm³ of 0.5 potassium hydroxide solution, what would be the pH of the resulting solution?

- (A) 5 (B) 7 (C) 9 (D) 14

20. A base is a substance which will neutralize an acid. Which of these substances is not a base?

- (A) Aqueous ammonia (B) Copper oxide
(C) Potassium chloride (D) Sodium carbonate

21. A strong acid:

- (A) Is always partially ionized when in solution (B) Is always fully ionized when in solution
(C) Always decomposes carbonates (D) Always contains oxygen

22. Which one of the following oxides dissolves in water to form acidic solution?

- (A) MgO (B) Na₂O (C) SO₂ (D) SiO₂

23. When crystals of copper sulphate are heated, the colour changes from blue to white. This is caused by:

- (A) Loss of water only (B) Loss of water and SO₂
(C) Reaction with CO₂ in the air (D) Loss of water, sulphur dioxide and oxygen

24. The oxide of a metal was found to react with HCl and aqueous NaOH solution. Which of the following is the description of the oxide?

- (A) Acidic (B) Amphoteric (C) Basic (D) Neutral



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Answer Key

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