

Q 1/ Define the following:

- 1- Autoionization
- 2- Coordinate covalent bond
- 3- Buffer solution
- 4- Non-metals
- 5- Ionic bond

Q2/ Answer the following:

- A- Explain the definition of Arrhenius, Bronsted, and Lewis for acids and bases.
- B- What is Electronegativity? How does electronegativity change across periods and groups? Why?

Q 3/

A- Prepare 250 ml of 1% (w/v) NaCl solution from 1 M NaCl (58.5 g/mol).

B- Describe the preparation of 500 mL of 0.9 M K^+ solution from solid K_2SO_4 (174.26 g/mol).

C- How would you prepare a 250 ml solution of 60% (v/v) Ethanol from 95% Ethanol?

Q4/ What are the main differences between metals and non-metals?

Q5/ Describe methods for expressing concentration in solutions.

Q6/ What is ppm? How to convert it into molar concentration?

Q7/ How do atomic sizes of elements change across the periodic table?

Q8/What are the types of buffer solutions?

Q9/How to prepare 0.1 M NaOH from 5% (W/V) NaOH?

Q10/ What are the types of titrations?