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Chemistry Grade 10 — Chapter 6

Salts

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Independent practice MCQs from the supplied Class 10 Chemistry notes pack. Total: 50 questions.

A. Important / Main Topics

1. Salts are ionic compounds formed through the electrostatic attraction between:

(A) Oppositely charged ions
(B) Two positively charged ions
(C) Two negatively charged ions
(D) Neutral molecules

Correct Answer: A

Explanation: Salts are ionic compounds formed through the electrostatic attraction between oppositely charged ions.

2. In a typical salt formation reaction, the positive ions come from:

(A) Acids
(B) Bases
(C) Water
(D) Air

Correct Answer: B

Explanation: In a typical salt formation reaction, the positive ions come from bases.

3. In a typical salt formation reaction, the negative ions come from:

(A) Bases
(B) Water
(C) Acids
(D) Air

Correct Answer: C

Explanation: In a typical salt formation reaction, the negative ions come from acids.

4. At STP, salts are usually:

(A) Gases
(B) Liquids
(C) Plasmas
(D) Solids

Correct Answer: D

Explanation: At STP, salts are usually Solids.

5. Why do salts have high melting points?

(A) Strong electrostatic forces
(B) Weak van der Waals forces
(C) Hydrogen bonding
(D) Covalent bonding

Correct Answer: A

Explanation: Strong electrostatic forces — this correctly answers the question.

6. In what state are salts generally good conductors of electricity?

(A) Solid
(B) Molten
(C) Gas
(D) Powdered

Correct Answer: B

Explanation: Salts are good conductors of electricity in the molten state.

7. Which of the following is a general solubility rule for chlorides?

(A) All chlorides are insoluble
(B) All chlorides are soluble
(C) Chlorides are soluble except lead and silver chlorides
(D) Chlorides are soluble except sodium and potassium chlorides

Correct Answer: C

Explanation: Chlorides are soluble except lead and silver chlorides.

8. What happens to the ions in a salt when it is dissolved in water?

(A) They form a gas
(B) They become fixed in place
(C) They form a solid
(D) They become mobile

Correct Answer: D

Explanation: When a salt is dissolved in water, its ions become mobile.

9. Which method is used to prepare a salt by titration?

(A) Acid + Alkali
(B) Acid + Metal
(C) Acid + Insoluble Base
(D) Acid + Insoluble Carbonate

Correct Answer: A

Explanation: Titration is used to prepare a salt from an acid and an alkali.

10. Which of these salts is insoluble in water?

(A) Potassium carbonate (K□CO□)
(B) Lead chloride (PbCl□)
(C) Ammonium nitrate (NH□NO□)
(D) Calcium chloride (CaCl□)

Correct Answer: B

Explanation: Lead chloride (PbCl□) is insoluble in water.

11. What is formed when an acid reacts with an excess of an insoluble base?

(A) Salt and hydrogen
(B) Salt and carbon dioxide
(C) Salt and water
(D) Salt and oxygen

Correct Answer: C

Explanation: When an acid reacts with an excess of an insoluble base, a salt and water are formed.

12. Which of the following salts is soluble in water?

(A) Silver chloride (AgCl)
(B) Lead carbonate (PbCO□)
(C) Lead chloride (PbCl□)
(D) Sodium nitrate (NaNO□)

Correct Answer: D

Explanation: Sodium nitrate (NaNO□) is soluble in water.

13. What type of ions do bases provide for salt formation?

(A) Positive ions
(B) Negative ions
(C) Neutral molecules
(D) Complex ions

Correct Answer: A

Explanation: Bases provide positive ions (cations) for salt formation.

14. In the preparation of a soluble salt using an excess of insoluble base, the excess base is removed by:

(A) Evaporation
(B) Filtration
(C) Crystallization
(D) Distillation

Correct Answer: B

Explanation: The excess base is removed by filtration.

15. The general solubility rule states that all _____ salts are soluble in water.

(A) Carbonate
(B) Hydroxide
(C) Nitrate
(D) Sulphate

Correct Answer: C

Explanation: All nitrate salts are soluble in water.

16. Which method is used to prepare a soluble salt when the base is insoluble?

(A) Titration
(B) Excess metal
(C) Excess insoluble carbonate
(D) Excess insoluble base

Correct Answer: D

Explanation: Excess insoluble base is used when the base is insoluble.

17. In the preparation of a soluble salt using excess metal, the metal is added in excess to:

(A) Ensure all the acid is used up
(B) Speed up the reaction
(C) Increase the yield
(D) Change the product

Correct Answer: A

Explanation: The metal is added in excess to ensure all the acid is used up.

18. Which of the following is an example of a salt that is soluble in water?

(A) Silver chloride (AgCl)
(B) Sodium chloride (NaCl)
(C) Lead sulphate (PbSO□)
(D) Calcium carbonate (CaCO□)

Correct Answer: B

Explanation: Sodium chloride (NaCl) is soluble in water.

19. During crystallization, the solution is:

(A) Heated to boiling
(B) Filtered immediately
(C) Cooled to form crystals
(D) Mixed with more solvent

Correct Answer: C

Explanation: During crystallization, the solution is cooled to form crystals.

20. Which of the following methods is used to prepare copper(II) sulphate from sulphuric acid and copper(II) oxide?

(A) Titration
(B) Excess metal
(C) Excess insoluble carbonate

(D) Excess insoluble base

Correct Answer: D

Explanation: Copper(II) oxide is an insoluble base, so the excess insoluble base method is used.

21. Do you think that most carbonates are soluble in water?

(A) No, most carbonates are insoluble
(B) Yes, all carbonates are soluble
(C) Only sodium carbonate is soluble
(D) Only calcium carbonate is soluble

Correct Answer: A

Explanation: Most carbonates are insoluble in water; the exceptions are sodium, potassium, and ammonium carbonates.

22. How can you prepare a soluble salt using an excess of an insoluble base?

(A) Add the base in exact amounts, filter, evaporate
(B) Add the base in excess, filter, evaporate, crystallize
(C) Add the base in excess, distill, crystallize
(D) Add the base in exact amounts, distill

Correct Answer: B

Explanation: Add the base in excess, filter, evaporate, crystallize — this correctly answers the question.

23. Which salts are typically soluble according to the general solubility rules?

(A) All carbonates
(B) All hydroxides
(C) All sodium, potassium, and ammonium salts
(D) All sulphates

Correct Answer: C

Explanation: All sodium, potassium, and ammonium salts are soluble.

24. Explain the process of crystallization in the preparation of a soluble salt.

(A) The solution is heated to boiling to form crystals
(B) The solution is filtered to form crystals
(C) The solution is mixed with more solvent to form crystals
(D) The solution is cooled to form crystals

Correct Answer: D

Explanation: "The solution is cooled to form crystals" is correct: it matches the idea asked in the question ("Explain the process of crystallization in the preparation of a soluble salt"), while the other choices do not.

25. Which of the following is a general solubility rule for carbonates?

(A) Carbonates are insoluble except sodium, potassium, and ammonium carbonates
(B) All carbonates are soluble
(C) All carbonates are insoluble
(D) Carbonates are soluble except sodium, potassium, and ammonium carbonates

Correct Answer: A

Explanation: Most carbonates are insoluble except sodium, potassium, and ammonium carbonates.

B. Less Important / Secondary Topics

26. Which of the following is a general solubility rule for sulphates?

(A) Sulphates are soluble except lead, barium, and calcium sulphates
(B) All sulphates are insoluble
(C) All sulphates are soluble
(D) Sulphates are insoluble except lead, barium, and calcium sulphates

Correct Answer: A

Explanation: Most sulphates are soluble except lead(II) sulphate, barium sulphate, and calcium sulphate.

27. Which of the following is an example of an insoluble salt?

(A) Sodium chloride (NaCl)
(B) Barium sulphate (BaSO□)
(C) Potassium nitrate (KNO□)
(D) Ammonium chloride (NH□Cl)

Correct Answer: B

Explanation: Barium sulphate (BaSO□) is insoluble in water.

28. Which of the following is an example of a soluble salt?

(A) Silver chloride (AgCl)
(B) Lead sulphate (PbSO□)
(C) Potassium nitrate (KNO□)
(D) Calcium carbonate (CaCO□)

Correct Answer: C

Explanation: Potassium nitrate (KNO□) is soluble in water.

29. Which of the following statements about salts is correct?

(A) Salts are covalent compounds
(B) Salts are metallic compounds
(C) Salts are molecular compounds
(D) Salts are ionic compounds

Correct Answer: D

Explanation: Salts are ionic compounds — this correctly answers the question.

30. Which of the following is a property of ionic compounds?

(A) They form a crystal lattice
(B) They are gases at STP
(C) They have low melting points
(D) They conduct electricity in solid state

Correct Answer: A

Explanation: They form a crystal lattice — this correctly answers the question.

31. When a salt dissolves in water, it dissociates into:

(A) Atoms
(B) Ions
(C) Molecules
(D) Electrons

Correct Answer: B

Explanation: When a salt dissolves in water, it dissociates into Ions.

32. Which of the following salts is insoluble in water?

(A) Sodium nitrate
(B) Ammonium chloride
(C) Barium sulphate
(D) Potassium carbonate

Correct Answer: C

Explanation: Barium sulphate (BaSO□) is insoluble in water.

33. Which of the following is NOT a property of ionic compounds?

(A) They are solids at STP
(B) They have high melting points
(C) They form a crystal lattice
(D) They conduct electricity in solid state

Correct Answer: D

Explanation: Ionic compounds do not conduct electricity in solid state because their ions are not free to move.

34. Which of the following salts is soluble in water?

(A) Sodium nitrate (NaNO□)
(B) Silver chloride (AgCl)
(C) Lead carbonate (PbCO□)
(D) Lead chloride (PbCl□)

Correct Answer: A

Explanation: Sodium nitrate (NaNO□) is soluble in water.

35. What type of ions do acids provide for salt formation?

(A) Positive ions
(B) Negative ions
(C) Neutral molecules
(D) Complex ions

Correct Answer: B

Explanation: Acids provide negative ions (anions) for salt formation.

36. An impure sample of calcium carbonate has a mass of 70 g. After purification, 56 g of calcium carbonate is recovered. What is the percentage purity of calcium carbonate?

(A) 56%
(B) 70%
(C) 80%
(D) 90%

Correct Answer: C

Explanation: 80% — this correctly answers the question.

37. If the impure sample contains 14 g of impurities, what is the mass of the pure CaCO□?

(A) 14 g
(B) 70 g
(C) 80 g
(D) 56 g

Correct Answer: D

Explanation: 56 g — this correctly answers the question.

38. What method would you use to purify this sample?

(A) Crystallization or filtration
(B) Distillation
(C) Sublimation
(D) Evaporation

Correct Answer: A

Explanation: For CaCO□, since it is insoluble, filtration can be used to separate it from soluble impurities. Crystallization can also be used.

39. If the purified CaCO□ is reacted with excess HCl, what gas is produced?

(A) Hydrogen gas
(B) Carbon dioxide gas
(C) Oxygen gas
(D) Nitrogen gas

Correct Answer: B

Explanation: Carbon dioxide (CO□) gas is produced when CaCO□ reacts with HCl.

40. Write the balanced chemical equation for the reaction between CaCO□ and HCl.

(A) CaCO□ + HCl → CaCl□ + H□
(B) CaCO□ + HCl → CaCl□ + O□
(C) CaCO□ + 2HCl → CaCl□ + CO□ + H□O
(D) CaCO□ + 2HCl → CaCl□ + H□ + CO□

Correct Answer: C

Explanation: "CaCO□ + 2HCl → CaCl□ + CO□ + H□O" is correct: it matches the idea asked in the question ("Write the balanced chemical equation for the reaction between CaCO□ and HCl"), while the other choices do not.

41. In the preparation of a soluble salt by titration, the indicator used is:

(A) Litmus
(B) Methyl orange
(C) Universal indicator
(D) Phenolphthalein

Correct Answer: D

Explanation: Phenolphthalein is used as an indicator in the titration method of salt preparation.

42. Why is phenolphthalein used in the titration method of salt preparation?

(A) It changes colour at the end point
(B) It speeds up the reaction
(C) It increases the yield
(D) It prevents the reaction

Correct Answer: A

Explanation: Phenolphthalein changes colour at the end point, indicating when neutralization is complete.

43. In a titration, 25.0 cm³ of a 0.10 mol/dm³ NaOH solution neutralized 20.0 cm³ of an HCl solution. What is the concentration of the HCl solution in mol/dm³?

(A) 0.08 M
(B) 0.125 M
(C) 0.10 M
(D) 0.20 M

Correct Answer: B

Explanation: 0.125 M — this correctly answers the question.

44. In a titration, 25.0 cm³ of a 0.10 mol/dm³ NaOH solution neutralized 20.0 cm³ of an HCl solution. What is the concentration of the HCl solution in g/dm³? (Molar mass of HCl = 36.5 g/mol)

(A) 3.65 g/dm³
(B) 5.00 g/dm³
(C) 4.56 g/dm³
(D) 2.50 g/dm³

Correct Answer: C

Explanation: "4.56 g/dm³" is correct: it matches the idea asked in the question ("In a titration, 25.0 cm³ of a 0.10 mol/dm³ NaOH solution neutralized 20.0 cm³ of an HCl solution. What is the concentration of the HCl solution in g/dm³? (Molar mass of HCl = 36.5 g/mol)"), while the other choices do not.

45. If the HCl solution is diluted to 100 cm³, what is the new concentration?

(A) 0.05 M
(B) 0.10 M
(C) 0.125 M
(D) 0.025 M

Correct Answer: D

Explanation: 0.025 M — this correctly answers the question.

46. In the preparation of a soluble salt using excess metal, the metal is added in excess to:

(A) Ensure all the acid is used up
(B) Speed up the reaction
(C) Increase the yield
(D) Change the product

Correct Answer: A

Explanation: The metal is added in excess to ensure all the acid is used up.

47. Which of the following is NOT a property of ionic compounds?

(A) They are solids at STP
(B) They conduct electricity in solid state
(C) They have high melting points
(D) They form a crystal lattice

Correct Answer: B

Explanation: Ionic compounds do not conduct electricity in solid state because their ions are not free to move.

48. Which of the following salts is soluble in water?

(A) Silver chloride (AgCl)
(B) Lead carbonate (PbCO□)
(C) Sodium nitrate (NaNO□)
(D) Lead chloride (PbCl□)

Correct Answer: C

Explanation: Sodium nitrate (NaNO□) is soluble in water.

49. What type of ions do acids provide for salt formation?

(A) Positive ions
(B) Neutral molecules
(C) Complex ions
(D) Negative ions

Correct Answer: D

Explanation: Acids provide negative ions (anions) for salt formation.

50. Which method is used to prepare a salt by titration?

(A) Acid + Alkali
(B) Acid + Metal
(C) Acid + Insoluble Base
(D) Acid + Insoluble Carbonate

Correct Answer: A

Explanation: Titration is used to prepare a salt from an acid and an alkali.