ASSIGNMENT-3

CLASS-X

Acids, Base and Salts & metals and non- metals

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| Q1. | a) How does baking powder differ from baking soda?  b) Name two organic acids. |  |
| Q2. | What will happen if heating is not controlled while preparing plaster of Paris? |  |
| Q3. | A housewife or a baker found that the cake prepared by her is hard and small in size. Which ingredient has she forgotten to add that would have made the cake fluffy? Give reason. |  |
| Q4. | Explain how pH change in the river water can endanger the lives of aquatic animals? |  |
| Q5. | What is water of crystallization? Name two hydrated salts. |  |
| Q6. | What happens when  (a) Solid sodium hydrogen carbonate is heated.  (b) Chlorine gas is passed through dry slaked lime.  (c) Gypsum is heated to a temperature of 373 K? |  |
| Q7. | i) What is a salt?  ii) Why aqueous solution of sodium carbonate and sodium bicarbonate is basic in nature?  iii) Why is an aqueous solution of ammonium chloride acidic in nature?  iv) What are the components of baking powder? |  |
| Q8. | a) A milkman adds a very small amount of baking soda to fresh milk  b) Why do acids not show acidic behaviour in the absence of water?  c) Alcohols and Glucose contain hydrogen but are not categorized as acids. |  |
| Q9. | a) Why is calcium sulphate hemihydrates called 'Plaster of Paris'?  b) Plaster of Paris should be stored in a moisture-proof container. Explain why? |  |
| Q10. | Equal lengths of the magnesium ribbons are taken in test tubes A and B. Hydrochloric acid (HCl) is added to test tube A, while acetic acid (CH3COOH) is added to test tube B. In which test tube will the fizzing occur more vigorously and why? |  |
| Q11. | Name a solution reacts with crushed egg-shells to give a gas that lime-water milky. |  |
| Q12. | a) Why does distilled water not conduct electricity, whereas rain water does?  b) Name the sodium compound which is used for softening hard water. |  |
| Q13. | a) What is aqua-regia?  b) What is efflorescence? |  |
| Q14. | Why should curd and sour substances not be kept in brass and copper vessels? |  |
| Q15. | Three solutions A, B and C have pH, values of 6, 4 and 10 respectively. Which of the solution is highly acidic? |  |
| Q16. | Two solutions X and Y have pH = 4 and pH = 8 respectively. Which solution will give alkaline reaction and which one acidic. |  |
| Q17. | a) A farmer has found that the pH of soil in his fields is 4.  b) Name any two chemical materials which he can mix with soil with soil to adjust its pH. |  |
| Q18. | a) Why do acids not show acidic behaviour in the absence of water?  b) How is NH4OH used as a laboratory reagent? |  |
| Q19. | Why should curd and sour substances not be kept in brass and copper vessels? |  |
| Q20. | a) Name two synthetic indicators.  b) Which acid is present in lemon juice?  c) Baking soda solution can be used as a remedy for which type of ailments? d) What is meant by neutralization?  e) Name two natural indicators.  f) What is the colour of methyl orange in acidic solution?  g) What is meant by dilution?  h) What is a universal indicator?  i) On what factors does the strength of a base depend?  j) Give example of common antacid. |  |
| 21. | a) Write the chemical name & formula of bleaching powder.  b) Name the compound used for removing hardness of water.  c) Which gas is released when an acid reacts with a metal?  d) What are the salts of sulphuric acid called?  e) What is difference between washing soda and soda ash?  g) Give one point difference between an alkali and a base.  h) Name the natural source of acetic acid.  i) When metal carbonates react with acids which gas is produced? |  |
| 22. | a) What do all acids and bases have in common?  b) Give one example of strong acid and weak acid.  c) What is the chemical name of hardest substance in our body?  d) What is dead burnt plaster?  e) What are olfactory indicators?  f) What happens when metal oxides react with acids? |  |
| 24. | a) What happens when sodium hydrogen carbonate is heated?  b) What is the pH range between which our body works?  c) Why is sulphuric acid called king of chemicals? |  |
| 25. | a) What are anhydrous and hydrated salts? Explain with examples.  b) Define base in terms of ions. Differentiate between acids and bases |  |
| 26. | What happens when chlorine is passed through slaked lime? |  |
| 27. | a) How is plaster of Paris different chemically different from gypsum? How may they be interconverted?  b) What is efflorescence? Give example.  c) Define: Calcination and roasting. |  |
| 28. | What is the role of water in litmus test of an acid? |  |
| 29. | What is the difference between a strong base and weak base? Give two example of each. |  |
| 30. | With the help of chemical equation explain how a soda acid fire extinguisher helps in putting out fire. |  |
| 31. | A yellow coloured powder `X` is soluble in carbon disulfide. It burns with a blue flame forming suffocating smelling gas which turns moist blue litmus red. Identify `X` and gives chemical reaction. Identify it is metal or non-metal. |  |
| 32. | A metal `X` is found in the form of filings which burns vigorously when sprinkle on flame. When these filings are treated with sulphur a black colured compound `Y` is formed which is not attracted by magnet. `X` reacts with dil HCl to liberate hydrogen gas. `X` reacts with steam to form `Z` along with hydrogen gas. Identify `X`, `Y`, and `Z`. Write the reaction involved. |  |
| 33. | A student was given Mg, Zn, Fe, and Cu metals. He put each of them in dil HCl contained in different test tubes. Identify which of them      (i) will not displace H2 from dil HCl      (ii) forms a pale green substance      (iii) will give H2 with 5% HNO3      (iv) will be displaced from its salt solution by all other metals. |  |
| 34. | Nikita took Zn, Al, Cu, Fe, Mg, Na metals & put each metal in cold water and then hot water. She reacted the metal with steam  (i) Name the metal which reacts with cold water.  (ii) Which of the above metals react with steam?  (iii) Name the metal which reacts with hot water.  (iv) Arrange these metals in order of increasing reactivity.  (v) What is aqua regia? What is its use? |  |
| 35. | A metal acts as a good reducing agent. It reduces Fe2O3, and MnO2.The reaction with Fe2O3 is used for welding broken railway tracks. Identify the metal and write all the chemical reactions. |  |
| 36. | An element reacts with oxygen to form an oxide which dissolves in dilute hydrochloric acid. The oxide formed also turns a solution of red litmus blue. Is the element a metal or non-metal? Explain with the help of a suitable example. |  |
| 37. | (i) Explain the term ‘roasting’ as used in metallurgical processes. Give one suitable example for it.  ii) What changes take place when cinnabar (HgS) is heated in air for a long enough time? |  |
| 38. | (a)Explain the following terms by giving one example of each:  (i) Mineral (ii) Ore (iii)Gangue  (b) Name the chief ore of iron. Write its formula. (b) How is an iron ore concentrated? Describe it briefly.  What is meant by the term ‘enrichment of ore’? Name four Methods generally used for enrichment of ores.   Why is ZnO called an amphoteric oxide? Give the support to your answer. |  |
| 39. | Write short notes on electrolytic refining of metals.  Write suitable example, explain how a metal low in the activity series can be extracted? |  |
| 40. | What do you mean by thermite reaction? What is its use? |  |
| 41. | NIKITA took sulphur powder on a spatula and heated it. He collected the gas evolved by inverting a test-tube over it. .  i) What will be the action of gas an (a) dry litmus paper? (b) Moist litmus paper?  (ii) Write a balanced chemical equation for the reaction taking place. |  |
| 42. | Explain how the following metals are obtained from their compounds by the reduction process. a) Metal X which is low in the reactivity series. b) Metal Y in the middle of reactivity series. c) Metal Z which is high in the reactivity series. Give an eg. of each. |  |
| 43. | Write the equations for the reactions of: a) Iron with Steam b) Calcium with Water. c) Potassium with Water. |  |
| 44. | Why Al metal cannot be obtained by the reduction of Al2O3 with Coke. |  |
|  | Why Al metal cannot be obtained by the reduction of Al2O3 with Coke. Q17 You cannot hold a piece of Na in your hand but you can eat Na ions in NaCl.Why? |  |
| 45. | Cinnabar is an ore of metal X.It exists in the lower order of the reactivity series. Write down the reaction involved in it for the extraction of X. |  |
| 46. | Name one metal each which is extracted by:  a) reduction with heat alone  b) reduction with C  c) reduction with Al. d) electrolytic reduction |  |
| 47. | Zn is more electropositive than Fe. So it should get corroded faster than Fe. But it does not happen. Instead it is used to galvanize Iron. Explain why does it happen so? |  |
| 48. | Cinnabar is an ore of metal X.it exists in the lower order of the reactivity series. Write down the reaction involved in it for the extraction of X. |  |
| 49. | Define calcination and roasting. |  |
| 50. | Explain the electrolytic decomposition of common salt with the help of diagram. |  |