

Chemistry Practical Class 11 Preparation of standard solution of sodium carbonate Viva Questions with Answers

Q1. What is quantitative analysis?

Answer. Quantitative analysis (QA) is a technique for understanding behaviour that employs mathematical and statistical modelling, measurement, and research. A given reality is represented numerically by quantitative analysts.

Q2. What is the standard solution?

Answer. The standard solution is defined as a solution of known concentration. A standard solution is created by dissolving a known amount of the substance in a specific volume of the solvent.

Q3. Which indicator is used while titrating strong acid against strong base?

Answer. Methyl orange or phenolphthalein.

Q4. What do you mean by the basicity of an acid?

Answer. The number of hydrogen atoms in a molecule that can be ionised is referred to as an acid's basicity.

Q5. Differentiate between molarity and molality.

Answer. Molarity of a solution is the number of moles of the solute present per litre of the solution, whereas molality is the number of moles of the solute present per kg of solvent.

Q6. What do you mean by a molar solution?

Answer. A molar solution is an aqueous solution containing one mole (gram-molecular weight) of a compound dissolved in one litre of solution. In other words, the solution has a molarity of 1 (1M) and a concentration of 1 mol/L.

Q7. Why is the standard solution always prepared in a volumetric flask?

Answer. A volumetric flask is used when it is necessary to know the volume of the solution being prepared precisely and accurately. Volumetric flasks have been calibrated (standardised) to specific

volumes. This enables scientists to determine how much liquid is contained in a specific flask when it is filled.

Q8. The standard solution of sodium carbonate is used for which purpose?

Answer. They are used in titrations to determine an unknown material's concentration.

Q9. What is acidimetry?

Answer. The method used to determine the strength of acid by titrating it against a standard alkali solution using a suitable indicator is known as acidimetry.

Q10. Why should the water for preparing NaOH standard solution be boiled?

Answer. Since dissolved CO_2 can cause a titration error, the water used to prepare the NaOH standard solution should be boiled to remove any dissolved CO_2 .

Q11. What substance can be used to make a standard solution?

Answer. A standard solution is a solution with a precise concentration. A standard solution is produced by dissolving a primary standard in a suitable solvent (such as distilled water).

Q12. What is the molar mass of the sodium carbonate?

Answer. The molar mass of the sodium carbonate is 106 g.

Q13. Is sodium carbonate a strong base?

Answer. Sodium carbonate (also known as washing soda or soda ash), Na_2CO_3 , is a non-volatile base that is a sodium salt of carbonic acid.

Q14. How will you prepare 250 ml of M/10 sodium carbonate solution?

Answer. To make 250 ml of M/10 Na_2CO_3 solution, dissolve $10.6/4 = 2.650$ g of sodium carbonate in a smaller amount of water and dilute the solution to exactly 250 ml.

Q15. What is the basicity of an acid?

Answer. Basicity of an acid is the number of replaceable hydrogen atoms present per molecule of acid.

Q16. Why is a standard solution of NaOH cannot be prepared?

Answer. NaOH is a hygroscopic substance. It absorbs moisture, therefore, it cannot be weighed and that is why its standard solution cannot be prepared directly.

Q17. What is the unit to express the strength of a standard solution?

Answer. The strength of a standard solution is expressed in moles per litre.

Q18. What is Acid-Base Titration?

Answer. It is a quantitative analysis method for determining the concentration of an acid or base by precisely neutralising it with a standard solution of either acid or base of known concentration. To determine the progression of the acid-base reaction, a pH indicator is used.

Q19. Why is it that distilled water is always used to make the standard solution?

Answer. Distilled water is essentially inert, meaning it only contains hydrogen and oxygen. Distillation is an excellent control element for science projects and laboratory tests because it kills most organic matter and removes minerals from water.

Q20. What precautions need to be followed while performing the experiment?

Answer. Some precautions to keep in mind while performing the experiment are as follows-

- Do not spill the substance on the balance pan while weighing.
- An apron should be worn while preparing laboratory reagents.
- Because bases are highly corrosive, they must be handled with extreme caution.
- The watch glass must be completely dry.
- The funnel should be thoroughly washed several times.
- The solution should be thoroughly shaken in order for it to become uniform.
- The solvent should be added to the solution in such a way that the lower meniscus of the solvent is on the mark of the measuring flask.
- The final few drops should be added with a pipette to avoid adding distilled water above the mark on the measuring cylinder's neck.