Q1. Acetic acid reacts with solid sodium hydrogen carbonate:

A Slowly forming no gas.
B Vigorously with effervescence.
C Slowly without effervescence.
D Vigorously without gas formation.

Q2. A student puts a drop of reaction mixture of a personification reaction first on a blue litmus paper and then on a red litmus paper. He may observe that:

A There is no change in the blue litmus paper and the red litmus paper turns white.T
B here is no change in the red litmus paper and the blue litmus paper turns red.
C There is no change in the blue litmus paper and the red litmus paper turns blue.
D No change in colour is observed in both the litmus papers.

Q3. $MnO_2 + x\ HCl \rightarrow MnCl_2 + y\ H_2O + z\ Cl_2$
In order to balance the above chemical equation, the values of x, y and z respectively are:

A 6, 2, 2 **B** 4, 1, 2 **C** 4, 2, 1 **D** 2, 2, 1

Q4. Which one of the following sets of materials can be used to prepare soap?

A Neem oil and calcium hydroxide.
B Castor oil and sodium hydroxide.
C Mineral oil and sodium hydroxide.
D Neem oil and magnesium hydroxide.

Q5. The balanced chemical equation showing reaction between quicklime and water is:

A $2CaO + H_2O \rightarrow 2CaOH + H_2 + Heat.$
B $CaO + H_2O \rightarrow Ca(OH)_2 + H_2 + Heat.$
C $CaO + H_2O \rightarrow Ca(OH)_2 + Heat.$
D $2CaO + 3H_2O \rightarrow 2Ca(OH)_3 + O_2 + Heat.$

Q6. For demonstrating the preparation of soap in the laboratory which of the following combinations of an oil and a base would be most suitable?

A Mustard oil and calcium hydroxide.
B Castor oil and calcium hydroxide.
C Turpentine oil and sodium hydroxide.
D Mustard oil and sodium hydroxide.

Q7. Acetic acid solution turns:

A Blue litmus red. **B** Red litmus blue. **C** Blue litmus colourless. **D** Red litmus colourless.

Q8. Which of the following statements is true for an amphoteric oxide?

A It reacts only with acid and does not form water.
B It reacts with acid as well as base to form salt and hydrogen gas.
C It reacts with both acid as well as base to form salt and water.
D It reacts only with base and does not form water.

Q9. $MnO, + 4HCl \rightarrow MnCl, + 2H_2O + Cl_2$
The reaction given above is a redox reaction because in this case:

A MnO_2 is oxidised and HCl is reduced.
B HCl is oxidised.
C MnO_2 is reduced.
D MnO_2 is reduced and HCl is oxidised.

Q10. A student adds a few drops of ethanoic acid to test tubes X, Y and Z containing aqueous solutions of sodium chloride, sodium hydroxide and sodium carbonate respectively. If he now brings a burning splinter near the mouth of the test tubes immediately after adding the ethanoic acid in each one of them, in which of the test tube or test tubes the flame gets extinguished?

A X and Y **B** Y and Z **C** X and Z **D** Only Z

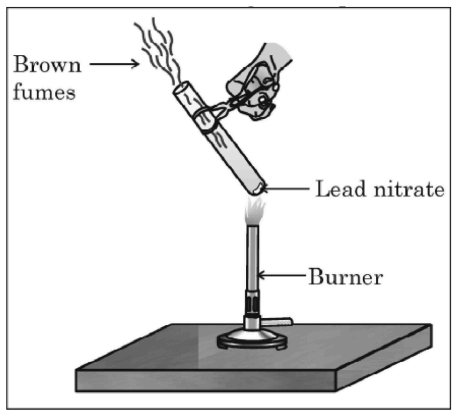
Q11. While studying saponification reaction for the preparation of soap, the teacher suggested to a student to add a small quantity of common salt to the reaction mixture. The function of common salt in this reaction is to: **1 Mark**

A Reduce the alkalinity of the soap.
B Reduce the acidity of the soap.
C Enhance the cleansing capacity of soap.
D Favour precipitation of soap.

Q12. Hydronium ions are formed by the reaction between: **1 Mark**

A Sodium hydroxide and water.
B Calcium chloride and water.
C Hydrogen chloride gas and water.
D Ethanol and water.

Q13. The emission of brown fumes in the given experimental set-up is due to



A Thermal decomposition of lead nitrate which produces brown fumes of nitrogen dioxide.
B Thermal decomposition of lead nitrate which produces brown fumes of lead oxide.
C Oxidation of lead nitrate forming lead oxide and nitrogen dioxide.
D Oxidation of lead nitrate forming lead oxide and oxygen.

Q14. Read the following statements:

1. When a red litmus paper is dipped into reaction mixture of a saponification reaction, it turns blue and the reaction is exothermic.
2. When a blue litmus paper is dipped into reaction mixture of a saponification reaction, its colour does not change and the reaction is exothermic.
3. When a red litmus paper is dipped into reaction mixture of a saponification reaction, its colour does not change and the reaction is endothermic.
4. When a blue litmus paper is dipped into reaction mixture of a saponification reaction, its colour does not change and the reaction is endothermic.

Which of the above statements are correct?

A I and II **B** II and III **C** III and IV **D** I and IV

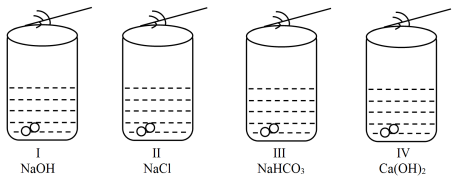
Q15. When aqueous solutions of potassium iodide and lead nitrate are mixed, an msoluble substance separates out. The chemical equation for the reaction mvolved is:

A $KI + PbNO_3 \rightarrow PbI + KNO_3$
B $2KI + Pb(NO_3)_2 \rightarrow PbI_2 + 2KNO_3$
C $KI + Pb(NO_3)_2 \rightarrow PbI + KNO_3$
D $KI + PbNO_3 \rightarrow PbI_2 + KNO_3$

Q16. Which of the following sets of materials can be used for conducting a saponification reaction for the preparation of soap?

A $Ca(OH)_2$ and neem oil.
B NaOH and neem oil.
C NaOH and mineral oil.
D $Ca(OH)_2$ and mineral oil.

Q17. A student added acetic to test tubes I, II, III and IV containing the labelled substance and then brought a burning splinter near the mouth of each test tube.



The splinter would be extinguished when brought near the mouth of test tube:

A I **B** II **C** III **D** IV

Q18. Hard water is not available for an experiment. Some salts are given below:

1. Sodium chloride.
2. Sodium sulphate.
3. Calcium chloride.
4. Calcium sulphate.
5. Potassium chloride.
6. Magnesium sulphate.

Select from the following a group of these salts, each member of which may be dissolved in water to make it hard.

A I, II, V. **B** I, III, V. **C** III, IV, VI. **D** II, IV, VI.

Q19. Oxides of aluminium and zinc are: **1 Mark**

A acidic **B** basic **C** amphoteric **D** neutral

Q20. Study the following chemical reaction:
$2\mathrm{Na(s)} + 2\mathrm{H_2O}\ (l) \rightarrow 2\mathrm{NaOH}\ (\mathrm{aq}) + \mathrm{H_2(g)} \uparrow$
The reducing agent in this reaction is:

A Na **B** H_2O **C** NaOH **D** H_2

Q21. A student prepared 20% sodium hydroxide solution in a beaker containing water. The observations noted by him are given below.

1. Sodium hydroxide is in the form of pellets.
2. It dissolves in water readily.
3. The beaker appears cold when touched from outside.
4. The red litmus paper turns blue when dipped into the solution.

The correct observations are:

A I, II and III **B** II, III and IV **C** III, IV and I **D** I, II and IV

Q22. Sodium hydroxide is termed an alkali while Ferric hydroxide is not because:

A Sodium hydroxide is a strong base, while Ferric hydroxide is a weak base.

B Sodium hydroxide is a base which is soluble in water while Ferric hydroxide is also a base but it is not soluble in water.

C Sodium hydroxide is a strong base while Ferric hydroxide is a strong acid.

D Sodium hydroxide and Ferric hydroxide both are strong base but the solubility of Sodium hydroxide in water is comparatively higher than that of Ferric hydroxide.

Q23. A student adds 4 ml of acetic acid to a test tube containing 4 mL of distilled water. He then shakes the test tube and leaves it to settle. After about 10 minutes he observes:

A A layer of water over the layer of acetic acid.
B A layer of acetic acid over the layer of water.
C A precipitate settling at the bottom of the test tube.
D A clear colorless solution.

Q24. Select endothermic reaction from the following:

A Decomposition of vegetable matter into compost.

B Decomposition of calcium carbonate to form quick lime and carbon dioxide.

C Burning of a candle.

D Process of respiration.

Q25. When you add about 2 ml of acetic acid to a test tube containing an equal amount of distilled water and leave the test tube to settle after shaking its contents, then after about 5 minutes what will you observe in the test tube:

A A white precipitate settling at its bottom.
B A clear colourless solution.
C A layer of water over the layer of acetic acid.
D A layer of acetic acid over the layer of water.

Q26. Iron nails were dipped in an aqueous solution of copper sulphate. After about 30 minutes, it was observed that the colour of the solution changed from:

A Colour less to light green.
B Blue to light green.
C Bluetocolourless.
D Greenbelts.

Q27. Bronze is an alloy of:

A Copper and Zinc **B** Aluminium and Tin **C** Copper, Tin and Zinc **D** Copper and Tin

Q28. To show that zinc is a more active metal than copper, the correct procedure is to: **1 Mark**

A Add dilute nitric acid on strips of both the metals.

B Observe transmission of heat through strips of zinc and copper.

C Prepare solution of zinc sulphate and hang strip of copper into it.

D Prepare e solution of copper sulphate and hang strip of zinc into it.

Q29. Among the following, the metal with lowest density is: **1 Mark**

A Lithium **B** Lead **C** Magnesium **D** Aluminium

Q30. In an experiment to study the properties of acetic acid a student takes about 2 mL of acetic acid in a dry test tube. He adds about 2 mL of water to it and shakes the test tube well. He is likely to observe that:

A The acetic acid dissolves readily in water.

B The solution becomes light orange.

C Water floats over the surface of acetic acid.

D Acetic acid floats over the surface of water.

Q31. A student takes 2 mL acetic acid in a dry test tube and adds a pinch of sodium hydrogen carbonate to it. He makes the following observations:

1. A colorless and odourless gas evolves with a brisk effervescence.
2. The gas turns lime water milky when passed through it.
3. The gas burns with an explosion when a burning splinter is brought near it.
4. The gas extinguishes the burning splinter that is brought near it.

The correct observations are:

A I, II and III **B** II, III and IV **C** III, IV and I **D** IV, I and II

Q32. Select a pair of olfactory indicators from the following:

A Clove oil and vanilla essence.

B Onion and turmeric.

C Clove oil and litmus solution.

D Vanilla and methyl orange.

Q33. **Assertion (A):** Carbon has a strong tendency to either lose or gain electrons to attain noble gas configuration.
Reason (R): Carbon has four electrons in its outermost shell and has the tendency to share electrons with carbon or other elements.

A Both (A) and (R) are true and (R) is correct explanation of the assertion (A).

B Both (A) and (R) are true, but (R) is not the correct explanation of the assertion (A).

C (A) is true, but (R) is false.

D (A) is false, but (R) is true.

Q34. When sodium hydrogen carbonate is added to ethanoic acid a gas evolves. Consider the following statements about the gas evolved?

1. It turns lime water milky.
2. It is evolved with a brisk effervescence.
3. It has a smell of burning sulphur.
4. It is also a by-product of respiration.

The correct statements are:

A (A) and (B) only. **B** (B) and (D) only. **C** (A), (C) and (D). **D** (A), (B) and (D).

Q35. The colours of aqueous solution of $CuSO_4$ and $FeSO_4$ as observed in the laboratory are:

A Pale green and light blue respectively.

B Light blue and dark green respectively.

C Dark blue and dark green respectively.

D Dark blue and pale green respectively.

Q36. If 10mL of H_2SO_4 is mixed with 10mL of $Mg(OH)_2$ of the same concentration, the resultant solution will give the following colour with universal indicator:

A Red **B** Yellow **C** Green **D** Blue

Q37. Which of the following metals do not corrode in moist air?

A Copper **B** Iron **C** Gold **D** Silver

Q38. In order to study saponification reaction we first prepare 20% solution of sodium hydroxide. If we record the temperature of this solution just after adding sodium hydroxide flakes to water and also test its nature using litmus, it may be concluded that the process of making this solution is:

A Exothermic and the solution is alkaline.

B Endothermic and the solution is alkaline.

C Endothermic and the solution is acidic.

D Exothermic and the solution is acidic.

Q39. **1 Mark**

A student prepared 20% sodium hydroxide solution in a beaker to study saponification reaction. Some observations related to this are given below:

1. Sodium hydroxide solution turns red litmus blue.
2. Sodium hydroxide readily dissolves in water.
3. The beaker containing solution appears cold when touched from outside.
4. The blue litmus paper turns red when dipped into the solution.

The correct observations are:

A I, II and IV. **B** I, II and III. **C** Only III and IV. **D** Only I and II.

Q40. If you take some distilled water in a test-tube, add an equal amount of acetic acid to it, shake the test-tube well and leave it undisturbed on the test-tube stand, then after about 5 minutes, what would you observe?.

A There is a layer of water over the layer of acetic acid.
B A precipitate is settling at the bottom of the test-tube.
C Bubbles of colourless gas are coming out of the test-tube.
D There is a clear, colourless transparent solution in the test-tube.

Q41. Acetic acid smells like:

A A banana. **B** Vinegar. **C** An orange. **D** A lemon.

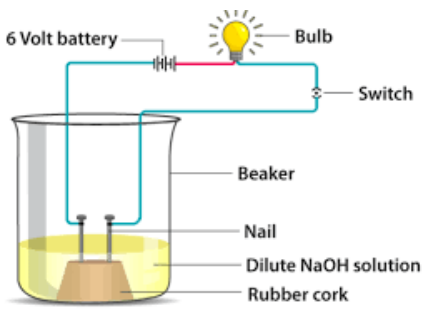
Q42. A student adds a few drops of ethanol acid to test tubes X, Y and Z containing aqueous solutions of sodium chloride, sodium hydroxide and sodium carbonate respectively. If he now brings a burning splinter near the mouth of the test tubes immediately after adding the ethanol acid in each one of them, in which of the test tube or test tubes the flame gets extinguished?

A X and Y **B** Y and Z **C** X and Z **D** Only Z

Q43. You have four test tubes, A, B, C and D containing sodium carbonate, sodium chloride, lime water and blue litmus solutions respectively. Out of these the material of which test tube/test tubes would be suitable for the correct test of acetic/ ethanoic acid?

A Only A **B** A and B **C** B and C **D** A and D

Q44. In the given experimental set-up, if the experiment is carried out separately with each of the following solutions the cases in which the bulb will glow is/ are:



1. Dilute hydrochloric acid
2. Dilute sulphuric acid
3. Glucose solution
4. Alcohol

A (i) only **B** (ii) only **C** (i) and (ii) **D** (ii), (iii) and (iv)

Q45. We need 20% aqueous solution of sodium hydroxide for the study of saponification reaction. When we open the lid of the bottle containing solid sodium hydroxide we observe it in which form?

A Colourless transparent beads.
B Small white beads.
C White pellets/ flakes.
D Fine white powder.

Q46. Two statements are given– one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
Assertion (A): Ethanoic acid is also known as glacial acetic acid.
Reason (R): The melting point of pure ethanoic acid is 290K and hence it often freezes during winters in cold climates.

A Both (A) and (R) are true and (R) is correct explanation of the assertion.
B Both (A) and (R) are true but (R) is not the correct explanation of the assertion.
C (A) is true but (R) is false.
D (A) is false but (R) is true.

Q47. A visually challenged student, has to perform a lab test to detect the presence of acid in a given solution. The acid-base indicator preferred by him will be: **1 Mark**

A Blue litmus. **B** Clove oil. **C** Red cabbage extract. **D** Hibiscus extract.

Q48. The chemical formula for plaster of Paris is: **1 Mark**

A $CaSO_4.2H_2O$. **B** $CaSO_4.H_2O$.
C $CaSO_4.\frac{1}{2}H_2O$. **D** $2CaSO_4.H_2O$.

Q49. Hard water required for an experiment is not available in a school laboratory. However, following salts are available in the laboratory. Select the salts which may be dissolved in water to make it hard for the experiment.

1. Calcium Sulphate.
2. Sodium Sulphate.
3. Calcium Chloride.
4. Potassium Sulphate.
5. Sodium Hydrogen Carbonate.
6. Magnesium Chloride.

A 1, 2 and 4 **B** 1, 3 and 6 **C** 3, 5 and 6 **D** 2, 4 and 5

Q50. Two statements are given - one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
Assertion(A): Esterification is a process in which a sweet smelling substance is produced.
Reason(R): When esters react with sodium hydroxide an alcohol and sodium salt of carboxylic acid are obtained.

A Both A and Rare true and R is correct explanation of the Assertion.
B Both A and R are true but R is not the correct explanation of the Assertion.
C A is true but R is false.
D A is false but R is true.

Q51. Which one of the following are the correct observations about acetic acid?

A It turns blue litmus red and smells like vinegar.
B It turns blue litmus red and smells like burning sulphur.
C It turns res litmus blue and smells like vinegar.
D It turns red litmus blue and has a fruity smell.

Q52. A student takes about 2 mL ethanoic acid in a dry test tube and adds a pinch of sodium hydrogen carbonate to it. He reports the following observations:

1. Immediately a colourless and odourless gas evolves with a brisk effervescence.
2. The gas turns lime water milky when passed through it.
3. The gas burns with an explosion when a burning splinter is brought near it.
4. The gas extinguishes the burning splinter that is brought near it.

The correct observations are:

A I, II and III **B** II, III and IV **C** III, IV and I **D** I, II and IV

Q53. A student takes about 6 mL distilled water in four test tubes marked P, Q, R and S. He dissolves sodium sulphate in P, potassium sulphate in Q, calcium sulphate in R and magnesium sulphate in S. After that he adds equal amount of soap solution in each test tube. On shaking these test tubes, he would observe a good amount of lather in the test tubes marked.

A P and Q. **B** Q and R. **C** R and S. **D** P and S.

Q54. Consider the following chemical equation I and II

1. $Mg + 2HCl \rightarrow MgCl_2 + H_2$
2. $NaOH + HCl \rightarrow NaCl + H_2O$

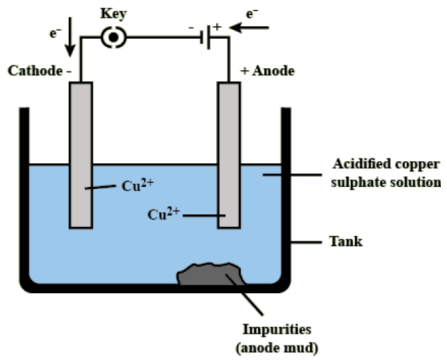
The correct statement about these equations is:

A 'I' is a displacement reaction and 'II' is a decomposition reaction.
B 'I' is a displacement reaction and 'II' is double displacement reaction.
C Both 'I' and 'II' are displacement reactions.
D Both 'I' and 'II' are double-displacement reactions.

Q55. A student prepared an aqueous solution of $CuSO_4$ in beaker X and an aqueous solution of $FeSO_4$ in beaker Y. He then dropped some iron pieces m beaker X and some zinc pieces in beaker Y. After about 10 hours he observed that the solutions in X and Y respectively appear: **1 Mark**

A Blue and green.
B Colourless and pale green.
C Colourless and light blue.
D Greenish and colourless.

Q56. The following diagram shows the electrolytic refining of copper: **1 Mark**



Which of the following statements is incorrect description of the process?

A The impure metal from the anode dissolves into the electrolyte.
B The pure metal from the electrolyte is deposited on the cathode.
C Insoluble impurities settle down at the bottom of the anode.
D On passing the current through the electrolyte, the pure metal from the anode dissolves into the electrolyte.

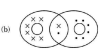
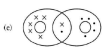
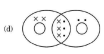
Q57. These consists of two statements — Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:
Assertion (A): It is advised that while diluting an acid one should add water to acid and not acid to water keeping the solution continuously stirred.
Reason (R): The process of dissolving an acid into water is highly exothermic.

A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of (A).
B Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of (A).
C Assertion (A) is true, but Reason (R) is false.
D Assertion (A) is false, but Reason (R) is true.

Q58. Metal oxides generally react with acids, but few oxides of metal also react with bases. Such metallic oxides are:
1. MgO
2. ZnO
3. Al_2O_3
4. CaO

A I and II
B II and III
C III and IV
D I and IV

Q59. The correct representation of covalent bonding in an oxygen molecule is:

A 
B 
C 
D 

Q60. Vapours of acetic acid smell:

A Pungent like vinegar.
B Sweet like rose.
C Suffocating like sulphur dioxide.
D Odourless like water.

Q61. Dry raisins were soaked in water for 2 hours, to determine the percentage of water absorbed by raisins.Before final weighing of swollen raisins, the extra water left on the surface of soaked raisins was removed by:

A Gently rubbing with cotton cloth.
B Hot air blower.
C Dry cotton wool.
D Filter paper.

Q62. In which of the following, the identity of initial substance remains unchanged?

A Curdling of milk.
B Formation of crystals by process of crystallisation.
C Fermentation of grapes.
D Digestion of food.

Q63. The name of the salt used to remove permanent hardness of water is:

A Sodium hydrogen carbonate ($NaHCO_3$)
B Sodium chloride (NaCl)
C Sodium carbonate decahydrate ($Na_2CO_3.10H_2O$)
D Calcium sulphate hemihydrate $\left(CaSO_4 \cdot \frac{1}{2}H_2O\right)$

Q64. On adding acetic acid to sodium hydrogen carbonate in a test tube, a student observes: **1 Mark**

A No reaction.
B A colourless gas with pungent smell.
C Bubbles of a colourless and odourless gas.
D A strong smell of vinegar.

Q65. The chemical mostly used in the preparation of most of the soaps we use is. **1 Mark**

A Sodium chloride. **B** Potassium hydroxide. **C** Sodium hydroxide. **D** Potassium chloride.

Q66. A metal X' is used in thermite process. When X is burnt in air it gives an amphoteric oxide Y. 'X" and Y' are respectively. **1 Mark**

A Fe and Fe_2O_3 **B** Al and AL_2O_3 **C** Fe and Fe_3O_4 **D** Al and AL_3O_4

Q67. Select the correct observation about dilute solution of acetic acid:

A It smells like rotten egg and turns blue litmus red. **B** It smells like vinegar and turns red litmus blue.
C It smells like rotten egg and turns red litmus blue. **D** It smells like vinegar and turns blue litmus red.

Q68. For preparing soap in the laboratory we require an oil and a base. Which of the following combinations of an oil and a base would be best suited for the preparation of soap?

A Castor oil and calcium hydroxide. **B** Turpentine oil and sodium hydroxide.
C Castor oil and sodium hydroxide. **D** Mustard oil and calcium hydroxide.

Q69. In a double displacement reaction such as the reaction between sodium sulphate solution and barium chloride solution:

1. Exchange of atoms takes place.
2. Exchange of ions takes place.
3. A precipitate is produced.
4. An insoluble salt is produced.

The correct option is:

A (B) and (D). **B** (A) and (C). **C** Only (B). **D** (B), (C) and (D).

Q70. A student took four test tubes P, Q, R and S and filled about 8 mL of distilled water in each. After that he dissolved an equal amount of Na_2SO_4 in P, K_2SO_4 in Q, $CaSO_4$ in R and $MgSO_4$ in S. On adding an equal amount of soap solution and shaking each test tube well, a good amount of lather will be obtained in the test tubes:

A P and Q **B** P and R **C** P, Q and S **D** Q, R and S

Q71. **Assertion (A):** Following is a balanced chemical equation for the action of steam on iron:
$3Fe + H_2O \rightarrow Fe_3O_4 + 4H_2$
Reason (R): The law of conservation of mass holds good for a chemical equation.

A Both (A) and (R) are true and (R) is the correct explanation of the assertion (A).
B Both (A) and (R) are true, but (R) is not the correct explanation of the assertion (A).
C (A) is true, but (R) is false.
D (A) is false, but (R) is true.

Q72. A student adds 2 mL of acetic acid to a test tube containing 2 mL of distilled water. He then shakes the test tube well and leaves it to settle for some time. After about 5 minutes he observes that in the test tube there is:

A A clear transparent colourless solution. **B** A clear transparent pink solution.
C A precipitate settling at the bottom of the test tube. **D** A layer of water over the layer of acetic acid.

Q73. Acid present in tomato is:

A Methanoic acid **B** Acetic acid **C** Lactic acid **D** Oxalic acid

Q74. Strong heating of ferrous sulphate leads to the formation of a brown solid and two gases. This reaction can be categorised as:

A Displacement and redox. **B** Decomposition and redox.
C Displacement and endothermic. **D** Decomposition and exothermic.

Q75. Consider the following oils:

1. Mobil oil.
2. Castor oil.
3. Turpentine oil.
4. Kerosene.
5. Mustard oil.

6. Coconut oil.

Which of these can be used for preparation of soap?

A I, II, III, VI **B** II, V, VI **C** II, III, V, VI **D** II, III, VI

Q76. A student takes about 6 ml of distilled water in each of the four test tubes P, Q, R and S, then dissolves an equal amount of four different salts namely sodium chloride in 'P', potassium chloride in 'Q', calcium chloride in 'R' Cand magnesium chloride in 'S'. He then adds 10 drops of soap solution to each test tube and shakes its contents. The test tubes in which scum (insoluble substance) is formed with soap are: **1 Mark**

A P and Q **B** Q and R **C** R and S **D** Q and S

Q77. An aqueous solution 'A' turns phenolphthalein solution pink. On addition of an aqueous solution 'B' to 'A', the pink colour disappears. The following statement is true for solution 'A' and 'B'.

A A is strongly basic and B is a weak base.
B A is strongly acidic and B is a weak acid.
C A has pH greater than 7 and B has pH less than 7.
D A has pH less than 7 and B has pH greater than 7.

Q78. In a locality, hard water, required for an experiment, is not available. However, the following salts are available in the school laboratory:

1. Sodium sulphate.
2. Calcium sulphate.
3. Magnesium chloride.
4. Sodium chlorid.
5. Calcium chloride.
6. Potassium sulphate.

Which of the above salts may be dissolved in water to obtain hard water for the experiment?

A 2, 3 and 5 **B** 1, 2 and 5 **C** 1, 2, 4 and 6 **D** 3 and 5 only

Q79. Solutions of copper sulphate, iron sulphate and zinc sulphate are prepared and marked I, II and III respectively. Few pieces of aluminium are added to each solutions. After some time a change will be observed in:

A I and II **B** II and III **C** III and I **D** All the three.

Q80. When you add a few drops of acetic acid to a test-tube containing sodium bicarbonate powder, which one of the following is your observation?

A No reaction takes place.
B A colourless gas with pungent smell is released with brisk effervescence.
C A brown coloured gas is released with brisk effervescence.
D Formation of bubbles of a colourless and odourless gas.

Q81. Fresh milk has a pH of 6. To delay its curdling, a chemical substance is added to it, which is:

A Sodium carbonate. **B** Baking powder.
C Sodium hydroxide (Caustic soda). **D** Baking soda (Sodium hydrogen carbonate).

Q82. On adding $NaHCO_3$ to acetic acid, a gas is evolved which turns lime water milky due to the formation of:

A Calcium bicarbonate. **B** Calcium hydroxide. **C** Calcium carbonate. **D** Calcium acetate.

Q83. While performing the experiment with raisins to determine the percentage of water absorbed by them, a student made following measurements:

1. Mass of water in the beaker = 40g.
2. Mass of raisins before soaking = 5g.
3. Mass of raisins after soaking for 2 hours = 8g.
4. Mass of water left in the beaker after the experiment = 35g.

The percentage of water absorbed by raisins is:

A $\frac{40\text{ g} - 35\text{ g}}{35\text{ g}} \times 100$
B $\frac{40\text{ g} - 35\text{ g}}{40\text{ g}} \times 100$
C $\frac{8\text{ g} - 5\text{ g}}{8\text{ g}} \times 100$
D $\frac{8\text{ g} - 5\text{ g}}{5\text{ g}} \times 100$

Q84. A cleaned aluminium foil was placed in an aqueous solution of zinc sulphate. When the aluminium foil was taken out of the zinc sulphate solution after 15 minutes, its surface was found to be coated with a silvery grey deposit. From the above observation it can be concluded that **1 Mark**

A Aluminium is more reactive than zinc.
B Zinc is more reactive than aluminium.
C Zinc and aluminium both are equally reactive.
D Zinc and aluminium both are non-reactive.

Q85. While studying saponification reaction, a student measures the temperature of the reaction mixture and also finds its nature using blue/ red litmus paper. On the basis of his observations the correct conclusion would be: **1 Mark**

A The reaction is exothermic and the reaction mixture is acidic.
B The reaction is endothermic and the reaction mixture is acidic.
C The reaction is endothermic and the reaction mixture is basic.
D The reaction is exothermic and the reaction mixture is basic.

Q86. A student takes Na_2CO_3 powder in a test tube and pours some drops of acetic acid over it. He observes:.

A No reaction in the test tube.
B Colourless gas with pungent smell.
C Bubbles of a colourless and odourless gas.
D White fumes with smell of vinegar.

Q87. In order to study saponification reaction we first prepare 20% solution of sodium hydroxide. If we record the temperature of this solution just after adding sodium hydroxide flakes to water and also test its nature using litmus, it may be concluded that the process of making this solution is:

A Exothermic and the solution is alkaline.
B Endothermic and the solution is alkaline.
C Endothermic and the solution is acidic.
D Exothermic and the solution is acidic.

Q88. In the preparation of soap, a small amount of sodium chloride (common salt) is added to the mixture of fat and sodium hydroxide. The role of common salt is to:

A Favour the precipitation of soap.
B Enhance the cleansing capacity of soap.
C Increase the weight of the soap to earn money.
D Decrease the acidity of the soap.

Q89. When zinc reacts with sodium hydroxide, the product formed is:

A Sodium oxide **B** Sodium zincate **C** Zinc hydroxide **D** Zinc oxide

Q90. A student requires hard water for an experiment in his laboratory which is not available in the neighbouring area. In the laboratory, there are some salts, which when dissolved in distilled water can convert it into hard water. Select from the following groups of salts, a group, each salt of which when dissolved in distilled water will make it hard.

A Sodium chloride, Potassium chloride.
B Sodium sulphate, Potassium sulphate.
C Sodium sulphate, Calcium sulphate.
D Calcium sulphate, Calcium chloride.

Q91. For questions number 17 to 20, two statements are given — one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
Assertion (A): In the following reaction
$ZnO + C \rightarrow Zn + CO$
ZnO undergoes reduction.
Reason (R): Carbon is a reducing agent that reduces ZnO to Zn.

A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
C Assertion (A) is true, but Reason (R) is false.
D Assertion (A) is false, but Reason (R) is true.

Q92. In the experiment for determining the percentage of water absorbed by raisins, we do the final weighing of the raisins after keeping them dipped in water for about one hour. For the accuracy of the result, the extra water from the surface of the soaked raisins is removed by:

A Rubbing with cotton cloth.
B Hot air blower.
C Dry cotton wool.
D Filter paper.

Q93. Wich of the following observations is true about dilute solution of acetic acid?

A It smells like vinegar and turns red litmus blue.
B It smells like onion and turns blue litmus red.
C It smells like orange and turns red litmus blue.
D It smells like vinegar and turns blue litmus red.

Q94. You are asked to prepare hard water in your laboratory. Select a group from the following groups of salts, any salt of which you may dissolve in distilled water to obtain hard water. **1 Mark**

A NaCl; Na_2SO_4; KCl **B** NaCl; $CaCl_2$; KCl **C** $CaCl_2$; $CaSO_4$; $MgSO_4$ **D** Na_2SO_4; $CaSO_4$; $MgSO_4$

Q95. While studying the saponification reaction, what do you observe when you mix an equal amount of colourless vegetable oil and 20% aqueous solution of NaOH in a beaker? **1 Mark**

A The colour of the mixture has become dark brown. **B** A brisk effervescence is taking place in the beaker.
C The outer surface of the beaker has become hot. **D** The outer surface of the beaker has become cold.

Q96. A student takes about 4 mL of distilled water in four test tubes marked P, Q, R and S. He then dissolves in each test tube an equal amount of one salt in one test tube, namely sodium sulphate in P, potassium sulphate in Q, calcium sulphate in R and magnesium sulphate in S. After that he adds an equal amount of soap solution in each test tube. On shaking each of these test tubes well, he observes a good amount of lather (foam) in the test tubes marked.

A P and Q. **B** Q and R. **C** P, Q and S. **D** P, R and S.

Q97. Consider the following comments about saponification reactions:

1. Heat is evolved in these reactions.
2. For quick precipitation of soap sodium chloride is added to the reaction mixture.
3. Saponification reactions are special kind of neutralisation reactions.
4. Soaps are basic salts of long chain fatty acids.

The correct comments are:

A I, II and III. **B** II, III and IV. **C** I, II and IV. **D** Only I and IV.

Q98. Q. No. 17 to 20 are Assertion — Reasoning based questions.
These consists of two statements — Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:
Assertion (A): Melting point and boiling point of ethanol are lower than that of sodium chloride.
Reason (R): The forces of attraction between the molecules of ionic compounds are very strong.

A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of (A).
B Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of (A).
C Assertion (A) is true, but Reason (R) is false.
D Assertion (A) is false, but Reason (R) is true.

Q99. When a small amount of acid is added to water, the phenomena which occur are:

1. Dilution.
2. Neutralisation.
3. Formation of H_3O^+ ions.
4. Salt formation.

The correct statements are:

A (A) and (C). **B** (B) and (D). **C** (A) and (B). **D** (C) and (D).

Q100. **Assertion (A):** Alloys are commonly used in electrical heating devices like electric iron and heater.
Reason (R): Resistivity of an alloy is generally higher than that of its constituent metals but the alloys have low melting points then their constituent metals.

A Both (A) and (R) are true and (R) is correct explanation of the assertion.
B Both (A) and (R) are true but (R) is not the correct explanation of the assertion.
C (A) is true but (R) is false.
D (A) is false but (R) is true.

Q101. Q. No. 17 to 20 are Assertion — Reasoning based questions. These consist of two statements — Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below.
Assertion (A): Reaction of Quicklime with water is an exothermic reaction.
Reason (R): Quicklime reacts vigorously with water releasing a large amount of heat.

A Both (A) and (R) are true and (R) is the correct explanation of (A).
B Both (A) and (R) are true but (R) is not the correct explanation of (A).
C (A) is true but (R) is false.
D (A) is false but (R) is true.

Q102. Following are the steps involved in the experiment 'to determine the percentage of water absorbed by raisins'. They are not in proper sequence. **1 Mark**

1. Soak the raisins in fresh water.
2. Weigh dry raisins.

3. Weigh soaked raisins.
4. Wipe out soaked raisins.

The correct sequence of steps is:

A I, II, III, IV **B** II, I, IV, III **C** II, I, III, IV **D** I, II, IV, III

Q103. What do we observe on pouring acetic acid on red and blue litmus papers?

A Red litmus remains red and blue litmus turns red.
B Red litmus turns blue and blue litmus remains blue.
C Red litmus turns blue and blue litmus turns red.
D Red litmus becomes colourless and blue litmus remains blue.

Q104. A student weighed some raisins and recorded the weight as '*x*'. She then soaked the raisins in distilled water. After about 2 hours she removed the raisins, wiped them dry and weighed again and recorded that as '*y*'. The percentage of water absorbed by raisins may be determined using the relationship:

A $\frac{y - x}{y} \times 100$ **B** $\frac{y - x}{x} \times 100$
C $\frac{y - x}{x} \times \frac{1}{100}$ **D** $(y - x) \times 100$

Q105. Copper is used for making cooking utensils. Which of the following physical properties of copper is NOT responsible for the same?

A Malleability **B** High melting point **C** Thermal conductivity **D** High reactivity

Q106. The number of electrons in the outermost shell of the atom of a non-metal can be:

A 1, 2 or 3 **B** 3, 4 or 5 **C** 5, 6 or 7 **D** 5, 6 or 8

Q107. The aqueous solutions of copper sulphate and zinc sulphate appear:

A Blue and green respectively.
B Green and colourless respectively.
C Blue and brown respectively.
D Blue and colourless respectively.

Q108. The colour of an aqueous solution of zinc sulphate as observed in the laboratory is:

A Green. **B** Yellow. **C** Blue. **D** Colourless.

Q109. A student adds 2mL of acetic acid to a test tube containing 2mL of distilled water. He then shakes the test tube well and leaves it to settle for some time. After about 5 minutes he observes that in the test tube there is:

A A clear transparent colourless solution.
B A clear transparent pink solution.
C A precipitate settling at the bottom of the test tube.
D Alayer of water over the layer of acetic acid.

Q110. A student adds a few drops of ethanoic acid to test tubes X, Y and Z containing aqueous solutions of sodium chloride, sodium hydroxide and sodium carbonate respectively. If he now brings a burning splinter near the mouth of the test tubes immediately after adding the ethanoic acid in each one of them, in which of the test tube or test tubes the flame gets extinguished?

A X and Y **B** Y and Z **C** X and Z **D** Only Z

Q111. On adding 2 mL acetic acid to 2 mL of water in a test tube, it was observed that:

A A clear and transparent solution is formed.
B A white precipitate is formed almost immediately.
C Two separate layers were formed.
D A colourless and odourless gas is evolved.

Q112. While preparing soap a small quantity of common salt is generally added to the reaction mixture of vegetable oil and sodium hydroxide. Which one of the following may be the purpose of adding common salt?

A To reduce the basic nature of the soap.
B To make the soap neutral.
C To enhance the cleansing power of the soap.
D To favour the precipitation of the soap.

Q113. The total number of electrons shared in the formation of an ethyne molecule is:

A 6 **B** 3 **C** 10 **D** 4

Q114. A student takes four test tubes marked P, Q, R and S of 25 mL capacity and fill 10 mL of distilled water in each. He dissolves one spoon full of four different salts in each as – KCl in P, NaCl in Q, $CaCl_2$ in R and $MgCl_2$ in S. He then adds about 2 mL of a sample of soap solution to each of the above test tubes. On shaking the contents of **1 Mark**

each of the test tubes, he is likely to observe a good amount of lather (foam) in the test tubes marked:

A P and Q. **B** R and S. **C** P, Q and R. **D** P, Q and S.

Q115. In order to study personification reaction we first prepare 20% solution of sodium hydroxide. If we record the temperature of this solution just after adding sodium hydroxide flakes to water and also test its nature using litmus, it may be concluded that the process of making this solution is: **1 Mark**

A Exothermic and the solution is alkaline.
B Endothermic and the solution is alkaline.
C Endothermic and the solution is acidic.
D Exothermic and the solution is acidic.

Q116. When Sodium bicarbonate reacts with dilute hydrochloric acid, the gas evolved is:

A Hydrogen; it gives pop sound with burning match stick.
B Hydrogen; it turns lime water milky.
C Carbon dioxide; it turns lime water milky.
D Carbon dioxide; it blows off a burning match stick with a pop sound.

Q117. For Questions number 17 to 20, two statements are given — one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.
Assertion (A): Sodium oxide is an amphoteric oxide.
Reason (R): Metal oxides which react with both acids as well as bases are known as amphoteric oxides.

A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
C Assertion (A) is true, but Reason (R) is false.
D Assertion (A) is false, but Reason (R) is true.

Q118. A student is testing water to know which is best for cleansing purposes with soaps. He would find that the cleansing action of soaps is best when he uses water obtained from.

A Rain. **B** Tap. **C** Hand pump. **D** Pond.

Q119. In an experiment to study the properties of ethanoic acid, a student takes about 3 mL of ethanoic acid in a dry test tube. He adds an equal amount of distilled water to it and shakes the test tube well. After some time he is likely to observe that.

A A colloid is formed in the test tube.
B The ethanoic acid dissolves readily in water.
C The solution becomes light orange.
D Water floats over the surface of ethanoic acid.

Q120. In order to balance the following chemical equation, the values of the coefficients x and y respectively are:

$$x\mathrm{Pb(NO_3)_2} \xrightarrow{\text{Heat}} 2\mathrm{PbO} + y\mathrm{NO_2} + \mathrm{O_2}$$

A 2, 4 **B** 2, 2 **C** 2, 8 **D** 4, 2

Q121. In the neighbourhood of your school, hard water required for an experiment is not available. Select from the following groups of salts available in your school, a group each member of which, if dissolved in distilled water, will make it hard:

A Sodium chloride, calcium chloride.
B Potassium chloride, sodium chloride.
C Sodium chloride, magnesium chloride.
D Calcium chloride, magnesium chloride.

Q122. Anaerobic process-

A Takes place in yeast during fermentation.
B Takes place in the presence of oxygen.
C Produces only energy in the muscles of human beings.
D Produces ethanol, oxygen and energy.

Q123. Calcium oxide reacts vigorously with water to produce slaked lime.
$CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(aq)$.
This reaction can be classified as:
1. Combination reaction.
2. Exothermic reaction.
3. Endothermic reaction.
4. Oxidation reaction.

Which of the following is a correct option?

A (A) and (C). **B** (C) and (D). **C** (A), (C) and (D). **D** (A) and (B).

Q124. An element X with atomic number 12 forms a compound with element Y with atomic number 17. The formula of the compound formed is: **1 Mark**

A XY **B** XY_2 **C** X_2Y **D** X_2Y_3

Q125. The compound obtained on reaction of iron with steam is/ are:

A Fe_2O_3. **B** Fe_3O_4. **C** FeO. **D** Fe_2O_3 and Fe_3O_4.