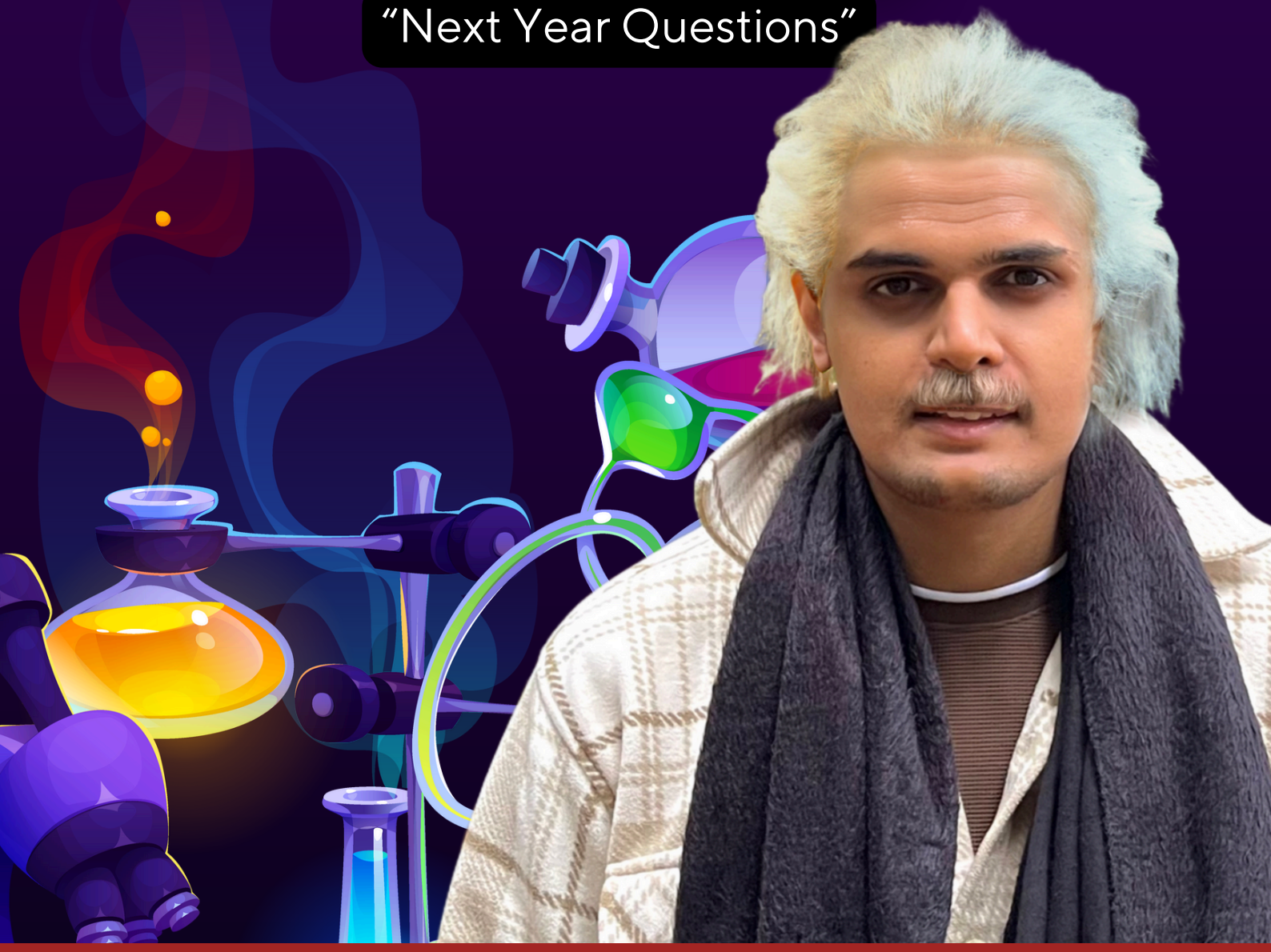
Next Toppers

Class X

अभय

NYQs

"Next Year Questions"



Chemical reactions and equations

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Chemical reactions and reactions

Q1. Some stale food gives a bad taste and a bad smell because of:
(A) Corrosion
(B) Displacement
(C) Heating
(D) Rancidity

Q2. Which of the following statements is incorrect?
(A) In oxidation oxygen is added to a substance
(B) In reduction hydrogen is added to a substance
(C) Oxidizing agent is oxidized
(D) Reducing agent is oxidized

Q3. In the equation, a Al + b H_2SO_4 → c $Al_2(SO_4)_3$ + d H_2, a, b, c, d are respectively -
(A) 2, 3, 1, 1
(B) 2, 3, 1, 3
(C) 2, 3, 2, 3
(D) 2, 2, 3, 3

Q4. The substance oxidised in the following reaction is -
$H_2S + Cl_2 \rightarrow 2HCl + S$
(A) Cl2
(B) H_2S
(C) HCl
(D) S

Q5. Which among the following statement(s) is (are) true?
Exposure of silver chloride to sunlight for a long duration turns grey due to
(i) the formation of silver by decomposition of silver chloride
(ii) sublimation of silver chloride
(iii) decomposition of chlorine gas from silver chloride
(iv) oxidation of silver chloride
(A) (i) only
(B) (i) and (iii)
(C) (ii) and (iii)
(D) (iv) only

Q6. Mention with reason the colour changes observed when:
(i)silver chloride is exposed to sunlight.
(ii)copper powder is strongly heated in the presence of oxygen.
(iii)a piece of zinc is dropped in copper sulphate solution.

Q7. What is observed when a solution of potassium iodide solution is added to a solution of lead nitrate? Name the type of reaction. Write a balanced chemical equation to represent the above chemical reaction.

Q8. Define a combination reaction. Give one example of a combination reaction which is also exothermic.

Q9. Write the balanced chemical equations for the following reactions.
(A) Calcium hydroxide + Carbon dioxide→ Calcium carbonate + water
(B) Zinc+ Silver nitrate →Zinc nitrate + Silver
(C) Aluminium + copper chloride →Aluminium chloride + Copper
(D) Barium chloride + Potassium sulphate →Barium sulphate + Potassium chloride.

Q10. Why do we store silver chloride in dark coloured bottles?

Q11. Identify the reducing agent in the following reactions
(a) $4\ NH_3 + 5\ O_2 \rightarrow 4\ NO + 6\ H_2O$
(b) $H_2O + F_2 \rightarrow HF + HOF$
(c) $Fe_2O_3 + 3\ CO \rightarrow 2\ Fe + 3\ CO_2$
(d) $2\ H_2 + O_2 \rightarrow 2\ H_2O$

Q12. Ferrous sulphate decomposes with the evolution of a gas having a characteristic odour of burning sulphur. Write the chemical reaction involved and identify the type of reaction.

Q13. On heating blue coloured powder of copper (I) nitrate in a boiling tube, copper oxide (black), oxygen gas, and a brown gas X is formed
(a) Write a balanced chemical equation of the reaction.
(b) Identity the brown gas X evolved.
(c) Identify the type of reaction.
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Q14. You are provided with two containers made up of copper and aluminium. You are also provided with dilute HCl, HNO_3, $ZnCl_2$ and H_2O solutions. In which of the above containers we can keep these solutions?

Q15. What is rancidity? Give some examples and some precautions also.

SOLUTION

Ans1.D

Ans2.C

Ans3.B

Ans4.B

Ans5. B

Ans6.(i) When white silver chloride is left exposed to sunlight, its colour changes to grey as it decomposes to silver in the presence of sunlight.
ii) When copper powder is strongly heated in presence of oxygen, the reddish brown surface of copper powder becomes coated with a black substance which is copper oxide.
(iii) When a piece of zinc is dropped in copper sulphate solution, then the blue colour of copper sulphate fades gradually due to the formation of colourless zinc sulphate solution and reddish brown copper metal gets deposited on zinc piece.

Ans7. Yellow precipitate of lead iodide is formed. It is precipitation reaction.
$Pb(NO_3)_2 (aq) + 2KI (aq) \longrightarrow PbI_2 (s) + 2KNO_3 (aq)$ It is also called double displacement reaction.

Ans8. In combination reactions,two or more substances combine to form a new compound. The general equation used to represent a combination reaction is : $A+Z \rightarrow AZ$
For example, calcium oxide reacts vigorously with water to produce calcium hydroxide $CaO(s) + H_2O(l) \rightarrow Ca(OH)_2$
A large amount of heat is also evolved during this process, which increases the temperature of the system. Hence, the combination of calcium oxide and water is exothermic in nature.

Ans9. (A)$Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$
(B) $Zn + 2AgNO_3 \rightarrow Zn(NO_3)_2 + 2Ag$
(C) $2Al + 3CuCl_2 \rightarrow 2AlCl_3 + 3Cu$

(D) $BaCl2 + K_2SO_4 \rightarrow BaSO4 + 2KCl$

Ans10. We store silver chloride in the dark-coloured bottles because silver chloride decomposes into silver and chlorine gas in sunlight.

Ans11. (a) Here, ammonia (NH3) is the reducing agent.
(b) Here, water (H2O) is the reducing agent.
(c) Here, carbon monoxide (CO) is the reducing agent.
(d) Here, hydrogen (H2) is the reducing agent.

Ans12. $FeSO4 (s) + Heat \rightarrow Fe2O3 (s) + SO2 (g) + SO3 (g)$
It is a thermal decomposition reaction.

Ans13. (a) $2 Cu(NO_3)_2 (s) + heat \rightarrow 2 CuO (s) + 4 NO_2 (g) + O_2 (g)$
(b) The brown gas is of nitrogen dioxide.
(c) It is a thermal decomposition reaction.

Ans14. The solution of dilute HCl, $ZnCl_2$, and H_2O can be kept in a container made of copper since copper is a less reactive metal and is placed below hydrogen in the reactivity series. Hence, it does not react with these solutions. However, nitric acid (HNO_3) reacts with copper, so it cannot be kept in a copper container.
At the same time, aluminum is a highly reactive metal and reacts with dilute HCl and $ZnCl_2$. While aluminum forms a protective oxide layer in water, it reacts with dilute nitric acid. Therefore, dilute HCl and $ZnCl_2$ can be stored in the copper container, and dilute H_2O can be stored in an aluminum container.

Ans15. Rancidity is the spoilage of food such that it becomes unsuitable and undesirable for consumption. Food turns rancid when the fats and oils within them get oxidized and the taste and smell of the food changes.
Example of rancidity: When a chips packet is exposed to atmospheric air which results in a change in taste and colour.
Precautions: 1.Food should be kept in sealed containers
2. Foods containing fat and oil can be packaged in nitrogen gas to prevent rancidity
3.Antioxidants can be added to food
4.Food should be stored away from light to avoid rancidity.