

VAISHALI EDUCATION POINT

(QUALITY EDUCATION PROVIDER)

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CHEMICAL REACTIONS & EQUATIONS

Class :- X

Subject :- Science

General Instructions

QNo.	Questions
1	Balance the reactions- $\text{Na} + \text{O}_2 \rightarrow \text{Na}_2\text{O}$ $\text{Ca} + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2 + \text{H}_2$
2	What type of chemical reactions are represented by following equations: (i) $\text{A} + \text{BC} \rightarrow \text{AC} + \text{B}$ (ii) $\text{X} + \text{Y} \rightarrow \text{Z}$ (iii) $\text{AB} + \text{CD} \rightarrow \text{AD} + \text{BC}$
3	What type of reactions takes place in following also write the chemical equation (a) Lime stone is heated. (b) silver bromide exposed to sunlight. (c) Ammonia and hydrogen chloride are mixed. (d) Magnesium wire is burnt in air. (e) Electricity is passed through water.
4	You are giving the following materials: Iron nails, Copper sulphate solution, Barium chloride solution, Ferrous sulphate crystals, Quick lime copper powder. Identify the type of chemical reaction takes place — (a) Barium chloride solution mixed with copper sulphate solution a white precipitate is observed. (b) On heating copper powder in air in the china dish, the surface of copper powder turns black. (c) On heating ferrous sulphate crystals, reddish brown solid is left and smell of a gas having odours of sulphur is obtained. (d) Iron nails dipped in copper sulphate solution becomes brownish in colour and blue coloured copper sulphate faded away. (e) Quick lime reacts vigorously with water, releasing large amount of heat.
5	Identify the substances oxidized and reduced in the chemical reaction: $\text{MnO}_2 + 4\text{HCl} \rightarrow \text{MnCl}_2 + \text{Cl}_2 + 2\text{H}_2\text{O}$ (2010)
6	Among C_3H_8 and C_3H_6 Which one is most likely to show addition reaction. Justify your answer. Explain with the help of a chemical equation, how on addition reaction is useful in vegetable ghee industry. (2010)
7	State which of the following chemical reactions will take place or not, giving suitable reason for each. (2008) $\text{Zn}(\text{S}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu}(\text{S})$ $\text{Fe}(\text{S}) + \text{ZnSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Zn}(\text{S})$ $\text{Zn}(\text{S}) + \text{FeSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Fe}(\text{S})$
8	A student dropped a few pieces of marble in dilute hydrochloric acid contained in a test tube. The involved gas was passed through lime water. What change would be observed in lime water? Write balanced chemical equations for both the changes observed (2009)
9	When solutions of lead (II) nitrate and potassium iodide are mixed. (i) What is the colour of precipitate formed. Name the compound precipitated (ii) Write the balanced chemical equation for this reaction. (iii) Now would you classify this reaction. (2010)
10	Write chemical equations for the reactions taking place when (i) Zinc carbonate is calcined (ii) Cinnabar is heated in the air (iii) Manganese dioxide is heated with aluminium powder (2010)
11	(a) Write the balanced chemical equations for the following reactions and identify the type of reaction $\text{Potassium bromide (aq)} + \text{Barium iodide (aq)} \rightarrow \text{Potassium Iodide (aq)} + \text{Barium Bromide (aq)}$ (i) $\text{Zinc carbonate (S)} \rightarrow \text{Zinc oxide (S)} + \text{Carbon dioxide (g)}$

- (b) What is the difference between the displacement and double displacement reactions? Write equation for these reactions **(2009)**
- 12 (a) A solution of a substance 'X' is used for white washing.
 (i) Name the substance 'X' and write its formula
 (ii) Write the reaction of the substance 'X' named in (i) above with water
 (b) Why does the colour of copper sulphate change when iron nail is dipped in it **(2010)**
- 13 You are given the following materials,
 (i) Iron nails
 (ii) Copper sulphate solution
 (iii) Barium chloride solution
 (iv) Copper powder
 (v) Ferric sulphate crystals
 (vi) Quick lime
 Identify the type of chemical reaction taking place when:
 (a) Barium chloride is mixed with copper sulphate solution and a white ppt is observed.
 (b) On heating copper powder in air in a china dish, the surface of copper powder turns black
 (c) On heating green coloured ferrous sulphate crystals, reddish brown solid is left and smell of a gas having odour of burning sulphur is experienced.
 (d) Quick lime reacts vigorously with water releasing a large amount of heat **(2010)**
- 14 Balance the chemical equation $\text{Pb}(\text{NO}_3)_2(\text{s}) \rightarrow \text{PbO}(\text{s}) + \text{NO}_2(\text{g}) + \text{O}_2(\text{g})$ **(2010)**
- 15 Balance the following chemical equation $2\text{FeSO}_4(\text{s}) \rightarrow \text{Fe}_2\text{O}_3(\text{s}) + \text{SO}_2(\text{g}) + \text{SO}_3(\text{g})$ **(2010)**
- 16 (a) Name the following and give equations for these reactions: 1) A white solid, which when heated, leaves behind a yellow solid and gives CO_2 . 2) A bluish green powder, on heating, leaves behind a black solid and gives CO_2 . 3) A colourless solid produces a yellow solid when hot and a white solid when cold and gives a reddish brown gas. Give equations for each
- 17 (a) Identify physical or chemical changes in the following: 1) A rock rolls down a slope 2) Baking of cake 3) Plucking of fruit 4) Burning of L. P. G 5) Cutting of carrots
 Explain whether the addition of dilute sulphuric acid to iron is a physical or chemical change. (c) Heating of iodine crystals is considered to be a physical change. Explain.
- 18 Balance the following equations after writing them as molecular equations. 1) Sodium + Nitrogen \rightarrow Sodium nitride. 2) Aluminium + Chlorine \rightarrow Aluminium chloride 3) Iron (III) oxide + Hydrogen \rightarrow Iron + Water 4) Phosphorous + Oxygen \rightarrow Phosphorous pentoxide 5) Trilead tetra oxide \rightarrow Lead monoxide + Oxygen.
- 19 Complete the following double displacement reactions.
 a) $\text{KOH} + \text{H}_2\text{SO}_4 \rightarrow$
 b) $\text{NaOH} + \text{HCl} \rightarrow$
 c) $\text{Al}_2(\text{SO}_4)_3 + \text{NaOH} \rightarrow$
 d) $\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow$
 e) $\text{PbSO}_4 + \text{Na}_2\text{CO}_3 \rightarrow$
- 20 Predict the type of each reaction.
 a) $2\text{Ag} + \text{S} \rightarrow \text{Ag}_2\text{S}$
 b) $\text{NH}_4\text{NO}_2 \rightarrow \text{N}_2 + 2\text{H}_2\text{O}$
 c) $2\text{NaI} + \text{Cl}_2 \rightarrow 2\text{NaCl} + \text{I}_2$
 d) $2\text{SO}_2 + \text{O}_2 \rightarrow 2\text{SO}_3$
 e) $\text{CuCl}_2 + 2\text{NaOH} \rightarrow \text{Cu}(\text{OH})_2 + 2\text{NaCl}$