



CHEMISTRY

BOOKS - CHETAN CHEMISTRY (TAMIL ENGLISH)

CHEMICAL REACTIONS AND EQUATIONS

Fill In The Blanks

1. The reaction $CaCO_3 \rightarrow CaO + CO_2$ is a _____
reaction



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2. The reaction in which oxygen is added to the substance is called _____ reaction

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3. Corrosion can be prevented by using _____

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4. The chemical reaction in which heat is absorbed is called _____ reaction





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5. The substance undergoing oxidation acts as a _____ agent.



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6. Formation of Itric axide from nitrogen and oxygen is a _____ reaction.



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7. When Oxidation and Reduction takes place simultaneously in a given chemical reaction, it is known as _____

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8. The substances taking part in a chemical reaction are called _____, whereas the substances formed as a result of a chemical reaction are called _____.

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9. A chemical reactions is represented by writing a _____.

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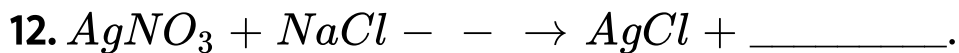
10. The reaction of a vegetable oil with hydrogen gas takes place in the presence of _____ as a catalyst to form vanaspati ghee.

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11. The reaction in which heat is given out along with products is known as _____ reaction.



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13. A redox reaction takes place during _____
respiration.



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14. Rancidity in the food stuff cooked in oil or ghee is prevented by using _____.



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15. The chemical reaction during with $H_{2(g)}$ is lost is termed as _____.

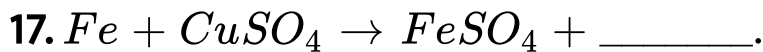


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16. When acids and alkalis react together, _____ and _____ is formed.



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18. What is a balanced chemical equation ?

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19. State and prove the law of conservation of energy.

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20. Which is a double salt ?



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Match The Columns

1. Match the following columns

| Reactants | Products | Types of Reaction |
|----------------------------|-----------------------------|---------------------|
| (1) Fe + S | (a) NaCl + H ₂ O | (i) Oxidation |
| (2) CuSO ₄ + Zn | (b) 2CuO | (ii) Neutralization |
| (3) 2Cu + O ₂ | (c) ZnSO ₄ + Cu | (iii) Displacement |
| (4) HCl + NaOH | (d) FeS | (iv) Combination |



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| Reactants | Products | Types of Reaction |
|---|---|--------------------------|
| (1) $\text{BaCl}_{2(\text{aq})} + \text{ZnSO}_{4(\text{aq})}$ | (a) $\text{H}_2\text{CO}_{3(\text{aq})}$ | (i) Displacement |
| (2) $2 \text{AgCl}_{(\text{s})}$ | (b) $\text{FeSO}_{4(\text{aq})} + \text{Cu}_{(\text{s})}$ | (ii) Combination |
| (3) $\text{CuSO}_{4(\text{aq})} + \text{Fe}_{(\text{s})}$ | (c) $\text{BaSO}_4 \downarrow + \text{ZnCl}_{2(\text{aq})}$ | (iii) Decomposition |
| (4) $\text{H}_2\text{O}_{(\text{l})} + \text{CO}_{2(\text{g})}$ | (d) $2\text{Ag}(\text{s}) + \text{Cl}_{2(\text{g})}$ | (iv) Double displacement |

2.



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| Column A | Column B |
|--|--|
| (1) Heating of Potassium Chlorate | (a) Turns lime water milky |
| (2) Depositing a layer of zinc on iron | (b) Physical change |
| (3) Souring of milk | (c) Rust |
| (4) Carbon dioxide | (d) MnO_2 is used as catalyst |
| (5) Iron oxide | (e) Chemical change |
| (6) Dissolving common salt in water | (f) Galvanisation |

3.



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True Or False

1. Digestion of food is a chemical change.



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2. A catalyst slows down the rate of reaction to make a better product.



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3. Reaction that releases energy is called Endothermic.



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4. Ammonium chloride is a sublimable salt.



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5. Rusting of iron is _____



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6. Mention the factor that affected the rate of a chemical reaction.



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7. Photosynthesis produces glucose and carbon dioxide .



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8. Define a chemical reaction.



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9. A chemical equation shows a chemical reaction using symbols and chemical formulae instead of words.



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10. Which of the following is not an endothermic reaction?

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11. Unlike physical changes, chemical changes cannot be easily reversed.

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12. The burning of matchstick is an example for chemical reaction based on_____.



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13. The reaction
$$Zn(s) + CuSO_4(aq) \rightarrow ZnSO_4(aq) + Cu(s)$$
 is
an example of double displacement reaction.



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14. Find whether the following sentences are true or false. If false Correct the statement: Chemical change is a temporary change.



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15. (g) indicates the physical state of a substance as solid.



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16. The suspension of slaked lime in water is known as



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17. Calcium oxide is also called lime to quicklime.



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18. In a chemical equation, the symbol \downarrow is used to denote precipitation formation.



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Name The Following

1. A change that takes place due to change in the parameters such as temperature, pressure.

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2. A process in which some substance undergo bond breaking and are transformed into new substances by formation of new bonds.

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3. Representation of a chemical reaction in a condensed form using chemical formulae.

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4. If the number of atoms of each element is not same on the two sides of an equation

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5. Fuel formed when organic waste is decomposed by micro-organism.

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6. The substance in whose presence the rate of a chemical reaction changes without causing any chemical change to it.



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7. The life on earth is protected from ultraviolet radiation of the sun.



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8. Explain the bond formation of hydrogen molecule.



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Choose And Write The Correct Option

1. A chemical reaction involves _____

A. Only breaking of bonds.

B. Only formation of bonds.

C. Both breaking and formation of bonds.

D. None of these.

Answer: C



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2. A balanced chemical equation always obeys _____

- A. Law of conservation of Mass
- B. Law of thermal equilibrium
- C. Law of conservation of energy
- D. All of the above

Answer: A



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3. Oily food kept out for few days gives a bad taste and a bad smell because of _____

A. Corrosion

B. Displacement

C. Heating

D. Rancidity

Answer: D



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4. The sign \downarrow indicates.

- A. Release of gas
- B. Dissolution of gas
- C. Formation of precipitate
- D. Lowering of temperature

Answer: C



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5. What is rust?

A. Sodium oxide

B. Iron oxide

C. Copper oxide

D. Silver oxide

Answer: B



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6. Because of the formation of which of the following, lime water turns milky when carbon

dioxide is passed through it?

- A. Calcium Carbonate
- B. Calcium bicarbonate
- C. Calcium hydroxide
- D. Sodium Carbonate

Answer: A



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7. Which of the following is formed when Sodium hydroxide reacts with hydrochloric acid ? `

- A. Calcium Chloride
- B. Hydrogen Chloride
- C. Sodium hydroxide
- D. Sodium Chloride

Answer: D



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8. _____ is a physical change.

- A. Ice changes into water
- B. Milk is set into curd

C. Ripening of fruit

D. Respiration process

Answer: A



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9. When sulphuric acid is poured over zinc, which of the following gas is formed ?

A. Sulphur dioxide

B. Hydrogen

C. Oxygen

D. Zinc dioxide

Answer: B



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10. Heating of sugar is called a _____ reaction.

- A. Combination reaction
- B. Displacement reaction
- C. Double displacement reaction
- D. Decomposition reaction

Answer: D



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11. Antioxidants are used to prevent _____ of food containing fats and oils.

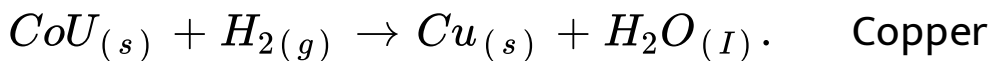
- A. Reduction
- B. Oxidation
- C. Oxidation and reduction
- D. Decomposition

Answer: B



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12. In the reaction given



oxide is _____ and hydrogen is _____.

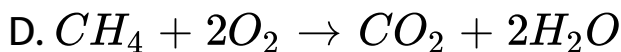
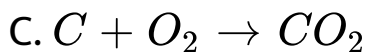
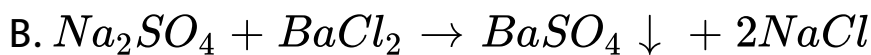
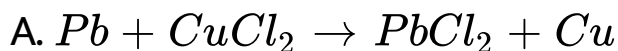
- A. Oxidized, reduced
- B. Reduced, oxidized
- C. Unaffected, reduced
- D. Unaffected, oxidized

Answer: B



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13. Which among the following is double displacement reaction ?



Answer: B



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Answer The Following

1. What is a balanced chemical equation ?

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2. "We need to balance an unbalanced skeletal chemical equation". Justify the statement.

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3. Giving an example list two information which make a chemical equation more useful.

(informative).

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4. What type of reaction takes place when vegetable matter is converted to compost ?

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5. What is rust ? Write the chemical formula.

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6. Why respiration is considered an exothermic reaction ?

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7. What are the factors on which the rate of thermionic emission depends?

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8. What is meant by reactants ?

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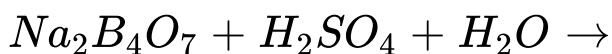
9. What is thermo chemical reactions?

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10. When carbon dioxide is passed through lime water

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11. Complete the following reactions



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12. What do you understand by precipitation reaction? Explain with examples.



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13. Which configuration is widely used in circuits ?



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14. what's happened when Zinc dust is added to copper sulphate solution.?

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15. Which is the oxidant used to purification of drinking water?

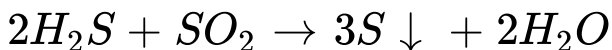
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16. Why is potassium permanganate used for cleaning of water tanks ?

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17. Some examples of redox reaction are given.

Identify the reductants and oxidants from them.



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18. What is the reaction called when oxidation and reduction take place simultaneously ? Explain with one example.



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19. Write the reaction of formation of Fe^{2+} by the reduction Fe^{3+} by making use of the symbol (e) ?

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20. State two conditions necessary for rusting of iron.

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21. Define the term : solution .

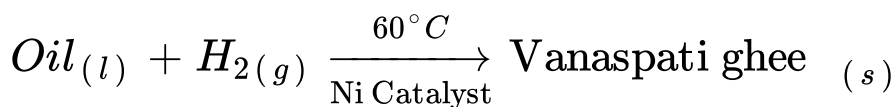
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22. In terms of chemistry what happens actually ,
when a molecule is oxidized ?

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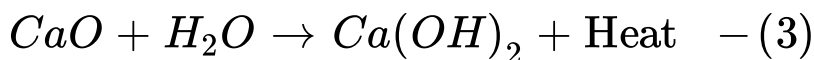
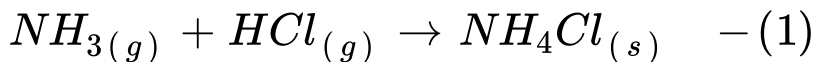
23. Identify the reactants and products of equation:

Vegetable



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24. What is the number of reactants in the following reactions.



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25. What is the number of molecules of reactants taking part in the above reactions ?

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26. How many products are formed in each of the above reaction ?



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27. Write the electronic concept of oxidation and reduction reactions.



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28. The rate of decomposition of hydrogen peroxide decreases in presence of





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29. Define reactant and product.



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30. Oxygen, hydrogen, and sulphur are examples for?



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31. Explain the similarity and difference in two events, namely adding NaOH to water and adding

CaO to water.

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32. What is rancidity ?Mention only two ways which rancidity can be prevented.

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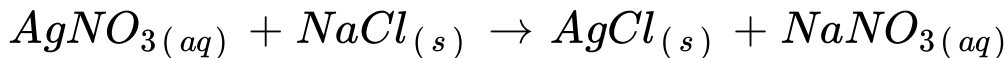
33. Why is it easier for you to float in salt water than in fresh water?

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34. Identify from the following reaction the reactant that undergo oxidation and reduction.

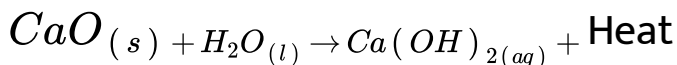
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35. Classify the reactions into different type.



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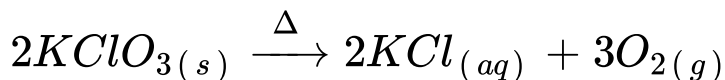
36. Classify the reactions into different type.



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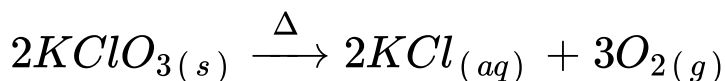
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37. Classify the reactions into different type.



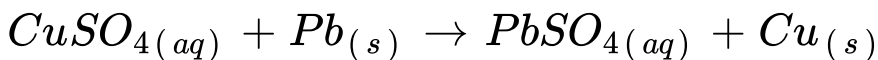
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38. Classify the reactions into different type.



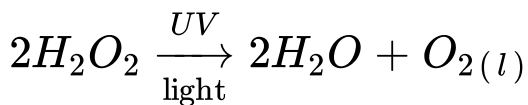
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39. Classify the reactions into different type.



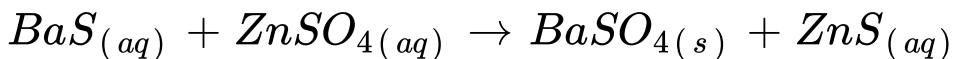
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40. Classify the reactions into different type.



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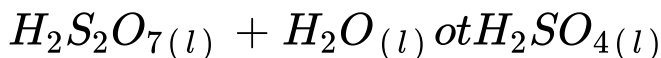
41. Classify the reactions into different type.





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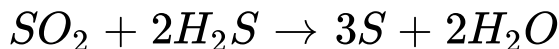
42. Balance the equation stepwise.



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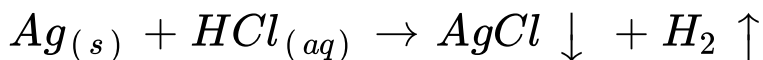
43. Balance the equation stepwise.

Write down the physical states of reactants and products in reactions.



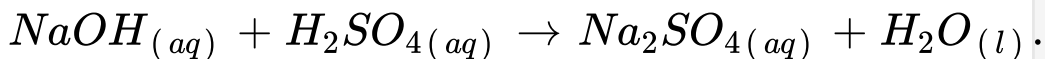
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44. Balance the equation stepwise.



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45. Balance the equation stepwise.

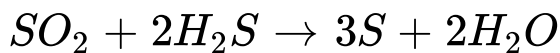


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46. Balance the equation stepwise.

Write down the physical states of reactants and

products in reactions.



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47. Write balanced chemical equation for the following processes

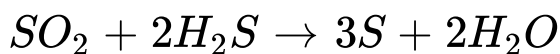
evaporating a solution of calcium hydrogen carbonate



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48. Balance the equation stepwise.

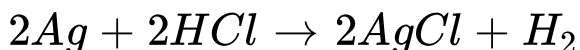
Write down the physical states of reactants and products in reactions.



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49. Balance the equation stepwise.

Write down the physical states of reactants and products in reactions.



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50. Balance the equation stepwise.

Is it possible to produce hydrogen by decomposition of water by means of heat, electricity or light ?



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51. Define a chemical reaction.



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52. ___ is the substance that is dissolved in a solvent.



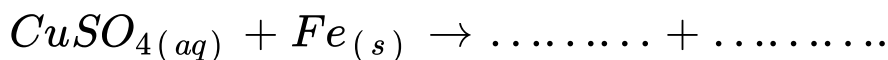
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53. Balance the equation stepwise.

Take into account the time required for following processes. Classify them into two groups and give titles to the groups.

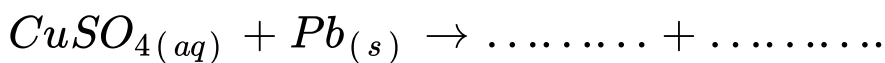
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54. Complete the reaction and give names of the products.



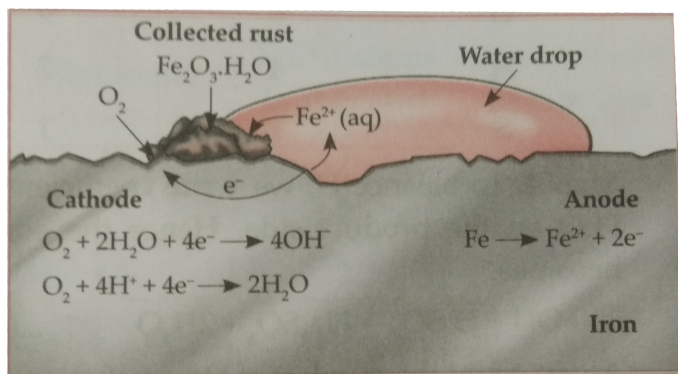
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55. Complete the reaction and give names of the products.



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56. Observe the following picture write down the chemical reaction with explanation.





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57. Iron sulphide reacts with sulphureic acid.



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58. what's happened when Zinc dust is added to copper sulphate solution.?



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59. How many moles of barium sulphate is precipitated when 1 mole of aluminium sulphate reacts completely with barium chloride ?

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60. What happens when excess of CO_2 reacts with calcium carbonate?

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61. (i) Write the products formed in the reaction of concentrated nitric acid with zinc.

(ii) d-block elements readily form complexes. Give reason.



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62. Mention the uses of sodium chloride.



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63. Sulphur dioxide act as ____.



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64. What happens when chloroform react with oxygen in the presence of sunlight?

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Define The Following Write Notes

1. _____ is a physical change.

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2. The chemical change is _____



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3. Bond breaking _____ energy during a chemical reaction .



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4. Chemical Equation



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5. Combination reaction and Decomposition reaction

 [Watch Video Solution](#)

6. Combination reaction and Decomposition reaction

 [Watch Video Solution](#)

7. Double displacement Reaction

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8. Which among the following is double displacement reaction ?



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9. Define endothermic reaction . Give an example .



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10. What is meant by exothermic reaction? Give an example.



[Watch Video Solution](#)

11. Complete the oxidation reaction.



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12. Reduction Reaction



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13. How Redox reaction occurs in

$NADH_2$ and $FADH_2$.



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14. Define a catalyst .



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. The above reaction is an example of neutralisation reaction .



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16. What is rancidity ?Mention only two ways which rancidity can be prevented.



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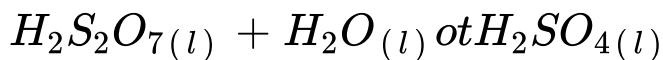
17. Which among the following is not a balanced equation ?



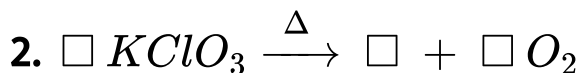
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Complete The Following Chemical Equations Balance And State The Type Of Reactions

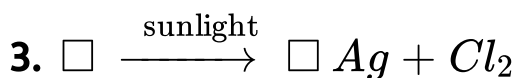
1. Balance the equation stepwise.



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1. Distinguish physical and chemical changes.

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2. Double displacement Reaction

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3. Combination reaction and Decomposition reaction

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4. Define the term exothermic and endothermic reactions.



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5. Oxidation Reaction



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Give Scientific Reasons

1. When the gas formed on heating limestone is passed through freshly prepared lime water, the lime water turns milky.



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2. It takes 24 hours to fill a swimming pool using two pipes. If the pipe of larger diameter is used for 8 hours and the pipe of the smaller diameter is used for 18 hours. Only half of the pool is filled. How long would each pipe take to fill the swimming pool.



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3. Can we use concentrated sulphuric acid and pure zinc in the preparation of dihydrogen?



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4. A spring balance shows wrong readings after using for a long time. Why ?



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5. Why during rainy seasons, the wooden doors and windows are difficult to close and open ? Give the

phenomenon behind this and also define the phenomenon.



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6. Photolysis is a decomposition reaction caused by_____



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7. Why respiration is considered an exothermic reaction ?



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8. Why is hydrogen peroxide stored in wax-lined plastic coloured bottles?



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Choose The Correct Option From The Bracket And Explain The Statement Giving Reason

1. A layer of zine coated over iron. Why?



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2. The conversion of Ferrous Sulphate to Ferric Sulphate isreaction .

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3. When electric current is passed through a bulb , the bulb gives light because of

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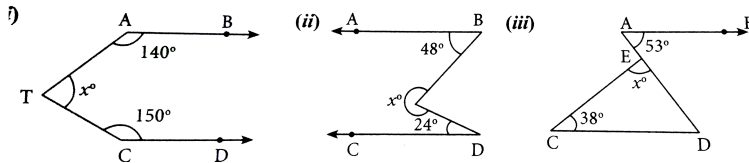
4. Addition of an aqueous solution of $ZnSO_4$ to an aqueous solution of $BaCl_2$ is an example of

double displacement reaction.

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Observe What Happen

1. In the figure, AB parallel to CD, find x.

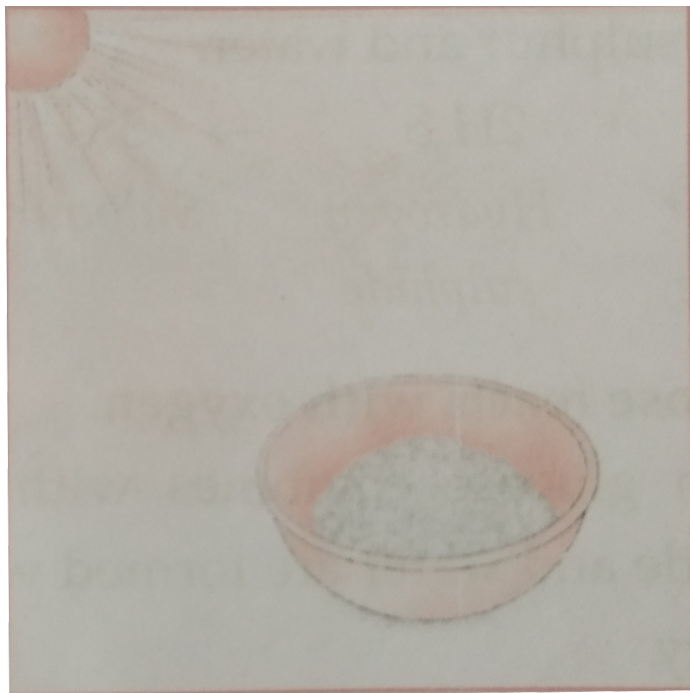


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Activity Based Questions

1. The diagram displays a chemical reaction.

Observe carefully and answer the question.



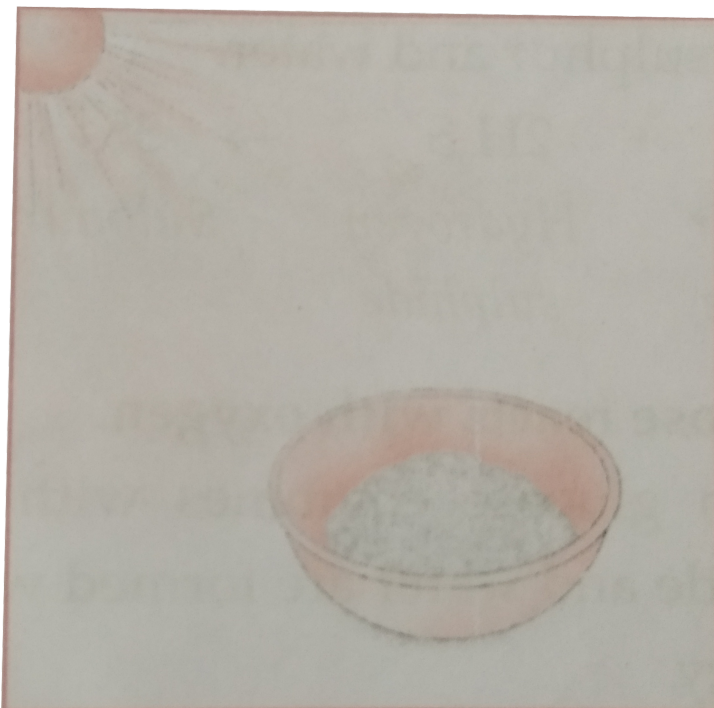
Identify the type of chemical reaction that will take place and define it. How will the colour of the salt change ?



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2. The diagram displays a chemical reaction.

Observe carefully and answer the question.



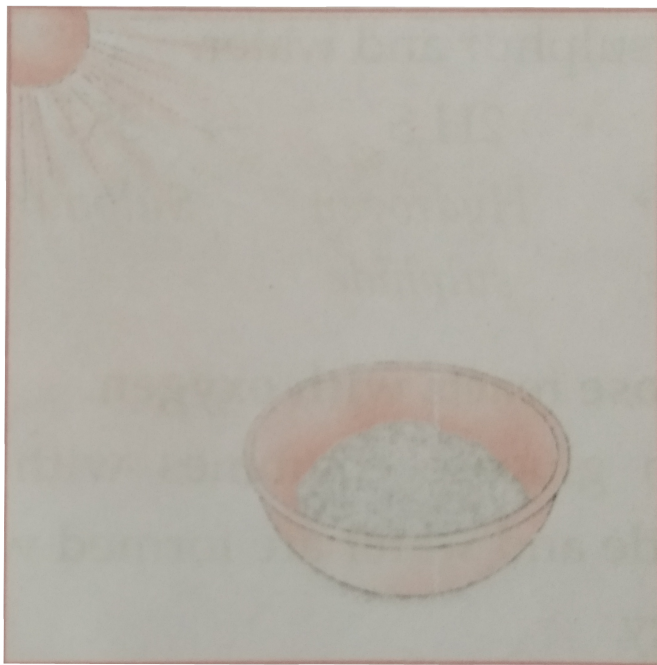
Write the chemical equation of the reaction that takes place.



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3. The diagram displays a chemical reaction.

Observe carefully and answer the question.



Mention one commercial use of this salt.



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4. Check the given materials and chemicals required for a chemical reaction and answer the question.

Material- Copper wire, iron nail, beaker or big test tube.

Chemicals - Ferrous sulphate solution and copper sulphate solutions.

How would identify that the reaction is carried out ?



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5. Check the given materials and chemicals required for a chemical reaction and answer the question.

Material- Copper wire, iron nail, beaker or big test

tube.

Chemicals - Ferrous sulphate solution and copper sulphate solutions.

How would identify that the reaction is carried out ?



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Answer The Following Questions In Detail

1. What are the essentials of a chemical equation ?



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2. What is rancidity ?Mention only two ways which rancidity can be prevented.



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3. Digestion of food is an example of decomposition reaction. Why?



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4. How is metal corrosion prevented?



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5. Mention the factor that affected the rate of a chemical reaction.

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Assignment 3

1. The reaction $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ is a _____ reaction

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2. The chemical reaction in which heat is absorbed is called _____ reaction



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3. A redox reaction takes place during _____ respiration.



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4. Because of the formation of _____ of the following, lime water turns milky when carbon

dioxide is passed through it?

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5. When sulphuric acid is poured over zinc, which of the following gas is formed ?

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6. What happens when a piece of zinc metal is added to copper sulphate solution ?

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7. Write a note on WWF



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8. Distinguish between diamond and graphite.



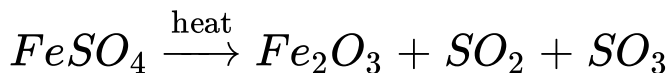
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9. Explain the term reactant and product giving examples.



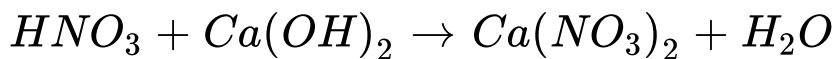
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10. Balance the given Chemical Equation:



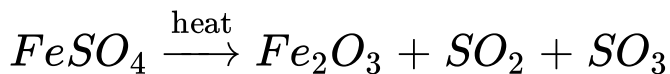
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11. Balance the given Chemical Equation:



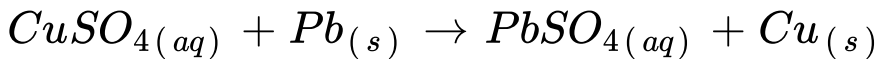
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12. Balance the given Chemical Equation:



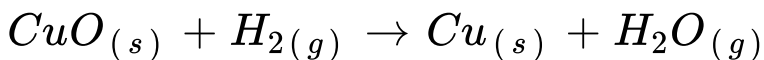
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13. Classify the reactions into different type.



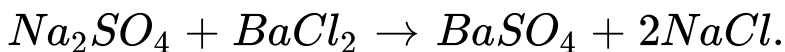
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14. Justify the following reaction is a redox reaction.



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15. What type of reaction is this:



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16. Explain the type of reaction with reference to oxygen and hydrogen. Illustrate with examples.



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17. What is rancidity ?Mention only two ways which rancidity can be prevented.





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18. What is corrosion? Do gold ornaments corrode ?

Justify.



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