

SECTION-01 - BE-01

BASICS OF SCIENCE AND ENGINEERING

PHYSICS

1. Units and Measurements
2. Classical Mechanics
3. Electric Current
4. Heat and Thermometry
5. Weave Motion, Optics and Acoustics

CHEMISTRY

6. Chemical Reactions and Equations
7. Acids, Bases and Salts
8. Metals and Non-Metals

COMPUTER PRACTICE

9. Computer Practice

ENVIRONMENT SCIENCES

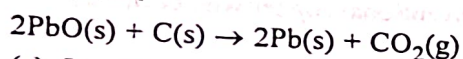
10. Environmental Sciences

CHEMISTRY

6. Chemical Reactions and Equations

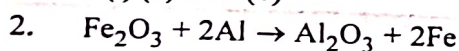
Multiple Choice Questions (MCQs)

1. Which of the statements about the reaction below are incorrect ?



- (a) Lead is getting reduced.
- (b) Carbon dioxide is getting oxidised
- (c) Carbon is getting oxidised
- (d) Lead oxide is getting reduced
- (i) (a) and (b) (ii) (a) and (c)
- (iii) (a), (b) and (c) (iv) all

Ans. : (i) (a) and (b)



The above reaction is an example of a

- (a) combination reaction
- (b) double displacement reaction
- (c) decomposition reaction
- (d) displacement reaction

Ans. : (d)

3. What happens when dilute hydrochloric acid is added to iron fillings ? Tick the correct answer.

- (a) Hydrogen gas and iron chloride are produced.
- (b) Chlorine gas and iron hydroxide are produced
- (c) No reaction takes place
- (d) Iron salt and water are produced

Ans. : (a)

4. One of the following does not happen during a chemical reaction. This is :

- (a) Breaking of old chemical bonds and formation of new chemical bonds.
- (b) Formation of new substances with entirely different properties.
- (c) Atoms of one element change into those of another element to form new products
- (d) A rearrangement of atoms takes place to form new products.

Ans. : (c)

5. You are given the solution of lead nitrate. In order to obtain a yellow precipitate you should mix with it a solution of :

- (a) Potassium chloride
- (b) Potassium nitride
- (c) Potassium sulphide
- (d) Potassium iodide

Ans. : (d)

6. An acid which can decolourise purple coloured potassium permanganate solution is :

- (a) sulphuric acid (b) citric acid
- (c) carbonic acid (d) hydrochloric acid

Ans. : (c)

7. One of the following is an endothermic reaction. This is :

- (a) combination of carbon and oxygen to form carbon monoxide
- (b) combination of nitrogen and oxygen to form nitrogen monoxide
- (c) combination of glucose and oxygen to form carbon dioxide and water
- (d) combination of zinc and hydrochloric acid to form zinc chloride and hydrogen

Ans. : (b)

8. One of the following is an exothermic reaction. This is :

- (a) electrolysis of water
- (b) conversion of limestone into quicklime
- (c) process of respiration
- (d) process of photosynthesis

Ans. : (c)

9. The chemical equations are balanced to satisfy one of the following laws in chemical reactions. This law is known as :

- (a) Law of conservation of momentum
- (b) Law of conservation of mass
- (c) Law of conservation of motion
- (d) law of conservation of magnetism

Ans. : (b)

10. Information is not obtained by the balance chemical equation choose correct one.
- Physical states of reactants and products
 - Symbols and formulae of all the substances involved in a particular reaction.
 - Number of atoms / molecules of the reactants and products formed.
 - Whether a particular reaction is actually feasible or not.

Ans. : (d)

11. Following are exothermic reaction choose correct one.
- Evaporation of water
 - Dilution of H_2SO_4
 - Reaction of water with quick lime
 - Sublimation of crystalline camphor
- (i) and (ii)
 - (iii) and (iv)
 - (i) and (iv)
 - (ii) and (iii)

Ans. : (d)

12. Reaction : $4\text{NH}_3(\text{g}) + 5\text{O}_2(\text{g}) \rightarrow 4\text{NO}(\text{g}) + 6\text{H}_2\text{O}(\text{g})$ is an example of :
- displacement reaction
 - combustion reaction
 - redox reaction
 - neutralisation reaction
- (i) and (iv)
 - (ii) and (iii)
 - (iii) and (iv)
 - (i) and (ii)

Ans. : (b)

13. Which of the following reaction occurs in white washing of walls ?

- $2\text{Ca} + \text{O}_2 \rightarrow 2\text{CaO}$
- $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2 + \text{heat}$
- $\text{Ca}(\text{OH})_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$
- $\text{Ca}(\text{OH})_2 \rightarrow \text{CaO} + \text{H}_2\text{O}$

Ans. : (c)

14. Dilute hydrochloric acid is added to test tube containing pieces of zinc. The following observations are recorded. Identify the correct observation.

- The surface of metal becomes lustrous
- The reaction mixture becomes milky
- Odour of pungent smelling gas is experienced
- A colourless and odourless gas is formed

Ans. : (d)

15. Potato chips manufacturers usually flush bags of chips with which inert gas to prevent the chips from getting oxidised ?

- Oxygen
- Hydrogen
- Chlorine
- Nitrogen

Ans. : (d)

16. Following is not a single displacement reaction.

- $\text{CuO} + \text{H}_2 \rightarrow \text{H}_2\text{O} + \text{Cu}$
- $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$
- $4\text{NH}_3 + 5\text{O}_2 \rightarrow 4\text{NO} + 6\text{H}_2\text{O}$
- $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$

Ans. : (c)

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