

Class- 10
chapter- 3
Answer key

1. (D)
2. (C)
3. (A)
4. (C)

Q.5. You are given a hammer, a battery, a bulb, wires and a switch.

- (a) How could you use them to distinguish between samples of metals and non-metals?
- (b) Assess the usefulness of these tests in distinguishing between metals and non-metals.

Answer----

- (a) With the hammer, we can beat the sample and if it can be beaten into thin sheets (that is, it is malleable), then it is a metal otherwise a non-metal. Similarly, we can use the battery, bulb, wires, and a switch to set up a circuit with the sample. If the sample conducts electricity, then it is a metal otherwise a non-metal.
- (b) The above tests are useful in distinguishing between metals and non-metals as these are based on

the physical properties. No chemical reactions are involved in these tests.

Q.6. What are amphoteric oxides? Give two examples of amphoteric oxides.

Ans- Those oxides that behave as both acidic and basic oxides are called amphoteric oxides.

Examples: aluminium oxide (Al_2O_3), zinc oxide (ZnO)

Q.7. Name two metals which will displace hydrogen from dilute acids, and two metals which will not.

Ans- Iron and aluminium will displace hydrogen from dilute acids as they are more reactive than hydrogen. Mercury and copper cannot displace hydrogen from dilute acids as they are less reactive than hydrogen.

Q.8. In the electrolytic refining of a metal M, what would you take as the anode, the cathode and the electrolyte?

Ans - In the electrolytic refining of a metal M:

Anode → Impure metal M

Cathode → Thin strip of pure metal M

Electrolyte → Solution of salt of the metal M

Q.(a) What will be the action of gas on

(i) dry litmus paper?

(ii) moist litmus paper?

(b) Write a balanced chemical equation for the reaction taking place.

(a)

(i) There will be no action on dry litmus paper.

(ii) The colour of litmus paper will turn red because sulphur is a non-metal and the oxides of non-metal are acidic in nature.

(b) $S(s) + O_2(g) \rightarrow SO_2(g)$

Q.10. State two ways to prevent the rusting of iron.

Ans - Two ways to prevent the rusting of iron are:

→ Oiling, greasing, or painting: By applying oil, grease, or paint, the surface becomes water proof and the moisture and oxygen present in the air cannot come into direct contact with iron. Hence, rusting is prevented.

→ Galvanisation: An iron article is coated with a layer of zinc metal, which prevents the iron to come in contact with oxygen and moisture. Hence, rusting is prevented.

Q.11. What type of oxides are formed when non-metals combine with oxygen?

Ans- When non-metals are combined with oxygen then neutral or acidic oxides are formed. Examples of acidic oxides are NO_2 , SO_2 and examples of neutral oxides are NO , CO etc.

Q.12. Give reasons

(a) Platinum, gold and silver are used to make jewellery.

(b) Sodium, potassium and lithium are stored under oil.

(c) Aluminium is a highly reactive metal, yet it is used to make utensils for cooking.

(d) Carbonate and sulphide ores are usually converted into oxides during the process of extraction.

Ans- (a) Platinum, gold, and silver are used to make jewellery because they are very lustrous. Also, they are

very less reactive and do not corrode easily.

(b) Sodium, potassium, and lithium are very reactive metals and react very vigorously with air as well as water. Therefore, they are kept immersed in kerosene oil in order to prevent their contact with air and moisture.

(c) Though aluminium is a highly reactive metal, it is resistant to corrosion. This is because aluminium reacts with oxygen present in air to form a thin layer of aluminium oxide. This oxide layer is very stable and prevents further reaction of aluminium with oxygen. Also, it is light in weight and a good conductor of heat. Hence, it is used to make cooking utensils.

(d) Carbonate and sulphide ores are usually converted into oxides during the process of extraction because metals can be easily extracted from their oxides rather than from their carbonates and sulphides.

Q.13. You must have seen tarnished copper vessels being cleaned with lemon or tamarind juice. Explain why these sour substances are