कुल मुद्रित पृष्ठ संख्या / Total No. of printed pages: _____

परमाणु ऊर्जा शिक्षण संस्था

Atomic Energy Education Society

Term-I/ practice papaer Answer key 2025 - 26

कक्षा / Class : 7 **अवधि / Duration : 3 hours**

विषय / Subject :science **अधिकतम अंक / Maximum Marks :80**

Answer Key

Section A

Multiple Choice Questions **(1 × 16 = 16 marks)**

1. B. Copper
2. B. Acetic acid
3. C. Sodium
4. B. Melting of ice
5. D. Methyl orange
6. C. Sodium hydroxide
7. B. To break or complete the circuit
8. C. Sulphur
9. C. Melting of wax
10. D. Burning of wood
11. B. Mercury
12. C. Plastic
13. B. Litmus
14. A. Iron + Copper sulphate → Iron sulphate + Copper
15. D. Gold
16. C. Water

Section B

Assertion–Reason Questions (1 × 4 = 4 marks)

17. C. A is true, R is false

18. C. A is true, R is false

19. C. A is true, R is false

20. A. Both A and R are true, and R explains A

Section C

Case-Based Question-1 (2 × 4 = 8 marks)

21. B. Copper is a conductor

22. C. Plastic is an insulator

23. B. Copper and Aluminium

24. C. Rubber

Case-Based Question-2

25. C. Chemical change

26. C. Bubbles formed during the reaction

27. C. Melting of ice

28. D. No new substance is formed.

Section D

Very Short Answer Questions (2 × 9 = 18 marks)

29. Acids taste sour and turn blue litmus red. They release hydrogen ions in water. Bases taste bitter, feel slippery, and turn red litmus blue. They release hydroxide ions in water. Examples: hydrochloric acid (acid), sodium hydroxide (base).

30. A displacement reaction occurs when a more reactive element replaces a less reactive one in a compound. For example, when iron is placed in copper sulphate solution, iron displaces copper, forming iron sulphate and copper metal:

$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

31. A physical change is a change in the shape, size, or state of a substance without forming a new substance. It is usually reversible. For example, melting of ice into water is a physical change as no new substance is formed.

32. An indicator is a substance that shows whether a solution is acidic or basic by changing its colour. Common indicators include litmus, turmeric, and phenolphthalein. For example, litmus turns red in acid and blue in base, helping identify the nature of substances.

33. Copper is used in electrical wires because it is a good conductor of electricity, allowing electric current to pass easily. It is also ductile, meaning it can be drawn into thin wires, and it resists corrosion, making it durable for wiring.

34. When an acid reacts with a base, a neutralization reaction occurs, forming salt and water. For example, hydrochloric acid reacts with sodium hydroxide to form sodium chloride and water:

$HCl + NaOH \rightarrow NaCl + H_2O$. This reaction is exothermic.

35. Rusting is a slow chemical change where iron reacts with oxygen and moisture to form a reddish-brown substance called rust (iron oxide). It weakens the metal over time. The reaction is:

Iron + Oxygen + Water → Iron oxide (rust).

36. Physical changes: Melting of ice, dissolving sugar in water.

Chemical changes: Burning of paper, rusting of iron.

Physical changes do not form new substances, while chemical changes result in the formation of new substances with different properties.

37. A switch controls the flow of electricity in a circuit. When the switch is ON (closed), current flows and the device works. When it is OFF (open), the circuit breaks and current stops. It helps operate electrical appliances safely and easily.

Section E

Short Answer questions (3 × 8 = 24 marks)

38. A simple electric circuit consists of a battery, wires, a switch, and a bulb. When the switch is closed, electric current flows from the battery's positive terminal through the wire to the bulb, making it glow. The current then returns to the negative terminal. Opening the switch breaks the circuit, stopping the flow of electricity and turning off the bulb.

39. Indicators are substances that show whether a solution is acidic or basic by changing colour. Natural indicators are obtained from plants. Litmus turns red in acids and blue in bases. Turmeric remains yellow in acids but turns reddish-brown in bases. These indicators help identify the chemical nature of substances during experiments or reactions.

40. Rusting is a chemical change because iron reacts with oxygen and water to form a new substance—iron oxide (rust). This changes the chemical composition of iron permanently. The reaction is:

Iron + Oxygen + Water → Iron oxide ($Fe_2O_3 \cdot xH_2O$)

Rusting weakens the metal and cannot be reversed easily, which proves it is a chemical change.

41. Neutralization is a chemical reaction in which an acid reacts with a base to form salt and water. It is exothermic and helps balance pH levels. For example:

HCl (acid) + NaOH (base) → NaCl (salt) + H_2O (water)

This reaction is used in medicine, agriculture, and treating acidic soils or stomach acidity.

42. Metals are solid, shiny, and good conductors of heat and electricity. They are malleable (can be hammered into sheets), ductile (can be drawn into wires), and sonorous (produce ringing sound). Most metals have high melting points and are strong. Examples include copper (used in wires) and iron (used in construction and tools).

43. Non-metals are dull, brittle, and poor conductors of heat and electricity. They are not malleable or ductile and do not produce sound when struck. Non-metals can exist in solid, liquid, or gaseous states. Examples include oxygen (gas), sulphur (solid), and bromine (liquid). They are used in fertilizers, medicines, and breathing processes.

44. A chemical reaction is a process where substances (reactants) change into new substances (products) with different properties. It involves breaking and forming chemical bonds. For example:

$Mg + 2HCl \rightarrow MgCl_2 + H_2$

Signs of a chemical reaction include colour change, gas release, heat change, or precipitate formation. Chemical reactions are irreversible and energy-involved.

45. Magnesium reacts with hydrochloric acid to form magnesium chloride and hydrogen gas. The reaction is:

$Mg + 2HCl \rightarrow MgCl_2 + H_2\uparrow$

Bubbles of hydrogen gas are released, and heat is produced. This is a displacement reaction, where magnesium replaces hydrogen due to its higher reactivity. The gas can be tested by bringing a burning matchstick near it.

Section F

Long Answer Questions (5 × 2 = 10 marks)

46. Metals are generally solid, shiny, and good conductors of heat and electricity. They are malleable (can be hammered into sheets), ductile (can be drawn into wires), and sonorous (produce ringing sounds when struck). Most metals have high melting points and are strong. Examples include copper (used in electrical wiring) and iron (used in construction).

Non-metals are usually dull, brittle, and poor conductors of heat and electricity. They are not malleable or ductile and do not produce sound. Non-metals can exist in solid, liquid, or gaseous states. Examples include oxygen (gas used for breathing), sulphur (solid used in medicines), and carbon (used in pencils). Non-metals are essential in biological and chemical processes.

47. Neutralization is a chemical reaction in which an acid reacts with a base to form salt and water. It is an exothermic reaction, meaning it releases heat.

Example reaction:

HCl (acid) + NaOH (base) → NaCl (salt) + H_2O (water)

In a labeled diagram, you would show:

- A beaker with hydrochloric acid

- A dropper adding sodium hydroxide

- A thermometer showing heat release

- Formation of salt and water

Real-life applications include:

- Antacids neutralizing excess stomach acid

- Lime (calcium hydroxide) used to reduce acidity in soil

- Toothpaste neutralizing acids in the mouth to prevent tooth decay

Neutralization helps maintain pH balance in many biological and environmental systems.