

Notes for valuers

- Accept answers in the student's own words if the scientific idea is correct.
- Diagrams: give marks for neatness and correct labels.
- Section D: only one of (a) or (b) is to be valued.

SECTION – A

20 × 1 = 20

1. B) acetic acid
2. C) lactic acid
3. B) a basic solution
4. A) dark pink (magenta)
5. C) neutral
6. B) a base
7. C) rubber
8. A) filament
9. C) B and C
10. B) battery
11. C) sonority
12. A) mercury
13. B) graphite (a form of carbon)
14. B) basic
15. B) chemical change
16. A) physical change
17. C) iron oxide
18. A) new evidence is found
19. A) a daily bath and clean clothes
20. B) zinc

SECTION – B

4 × 2 = 8

21. An ant bite injects formic acid into the skin. Baking soda is a base; it neutralises the acid and reduces the pain.
22. Conductors: iron key, steel spoon, copper wire, aluminium vessel. Insulators: plastic comb, rubber slipper, wooden spoon, glass tumbler (any two of each).
23. Aluminium is malleable and can be beaten into very thin sheets (foil). The foil keeps food clean and warm and does not react with the food easily.
24. Rust makes iron weak and brittle and slowly eats it away, damaging bridges, ships, vehicles and tools. Prevention: painting, oiling/greasing, galvanising (any two).

SECTION – C

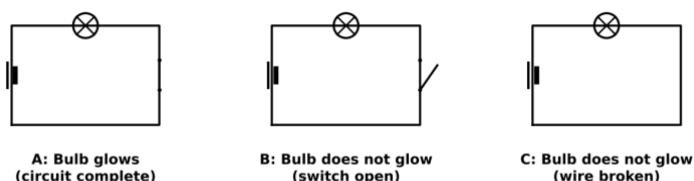
5 × 4 = 20

25. [4]

Substance	Nature	Red litmus	Blue litmus
Lemon juice	Acidic	No change	Turns red
Soap solution	Basic	Turns blue	No change
Sugar solution	Neutral	No change	No change
Vinegar	Acidic	No change	Turns red
Lime water	Basic	Turns blue	No change
Common salt solution	Neutral	No change	No change

26. The bulb glows only in **A**, where the circuit is complete.

In **B** the switch is open, and in **C** the wire is broken, so the path of current is not complete and the bulb does not glow.



27. Any four: copper for electric wires; aluminium for cooking vessels and foil; iron and steel for buildings, bridges, vehicles and tools; gold and silver for jewellery; mercury in thermometers; zinc for galvanising. [1 each]

28. **Physical change:** wax melts near the flame and becomes liquid; it becomes solid again on cooling.

Chemical change: wax vapour burns in air, producing carbon dioxide, water vapour, heat and light – new substances are formed.

29. During adolescence the body grows very fast, so it needs more energy, proteins, calcium, iron and vitamins. Foods: milk and curd, pulses and eggs, green leafy vegetables, fruits, cereals like rice, wheat and millets (ragi, jowar). Avoid junk food.

SECTION – D

4 × 8 = 32

30. a) Take 10 mL of dilute hydrochloric acid in a test tube and add 2 drops of phenolphthalein – it stays colourless.

Add sodium hydroxide solution drop by drop. When the acid is neutralised, the solution turns **pink**; adding a drop of acid makes it colourless again.

Touch the test tube – it is warm: **heat is given out**.

Hydrochloric acid + sodium hydroxide → sodium chloride + water (+ heat).

30. b)

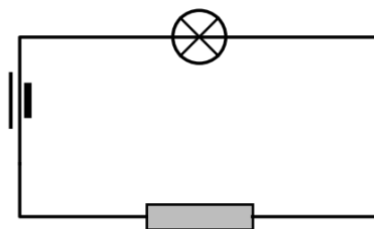
Indicator	In acid	In base
Blue litmus	Turns red	No change
Red litmus	No change	Turns blue
Turmeric	No change (yellow)	Turns red
China rose	Dark pink (magenta)	Green

We should not taste substances in the laboratory because many acids and bases are strong, poisonous or corrosive and can burn the mouth and harm the body.

31. a)

Object	Does the bulb glow?	Conductor / Insulator
Iron nail	Yes	Conductor

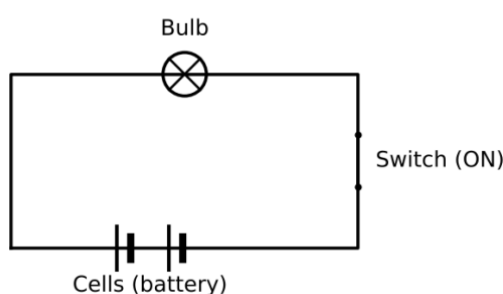
Coin	Yes	Conductor
Rubber eraser	No	Insulator
Wooden scale	No	Insulator
Pencil lead (graphite)	Yes	Conductor
Plastic comb	No	Insulator



Object to be tested
(between the two free ends)

- 31. b)** An electric cell has two terminals – the positive terminal (metal cap) and the negative terminal (metal disc at the bottom). In the symbol, the longer thin line is positive and the shorter thick line is negative. When the switch is closed, current flows from the positive terminal of the battery through the wires and the bulb to the negative terminal, and the bulb glows.

Circuit diagram of a torch



32. a)

Property	Metals	Non-metals
Lustre	Shiny	Dull (except iodine)
Hardness	Generally hard (sodium is soft)	Generally soft (diamond is very hard)
Malleability	Malleable	Brittle
Ductility	Ductile	Not ductile
Conduction of heat and electricity	Good conductors	Poor conductors (graphite conducts electricity)
Sonority	Sonorous	Not sonorous

- 32. b)** Hold a magnesium ribbon with tongs over a flame. It burns with a **dazzling white light** and leaves a white powder – **magnesium oxide**.

Dissolve the powder in a little water and test with litmus: **red litmus turns blue**, so magnesium oxide solution is **basic**.

This shows that oxides of metals are basic.

Magnesium + oxygen → magnesium oxide; magnesium oxide + water → magnesium hydroxide.

33. a) Add a spoonful of baking soda to vinegar in a test tube. There is a hissing sound and bubbles of **carbon dioxide** gas form.

Pass the gas through lime water – the **lime water turns milky**. This confirms carbon dioxide.

Vinegar (acetic acid) + baking soda → carbon dioxide + other substances.

Signs of a chemical change (any four): a new substance is formed; gas is given off; change of colour; heat or light is given out or absorbed; change of smell; sound is produced.

33. b) (i) **Reversible changes** can be undone (melting of ice, stretching a rubber band). **Irreversible changes** cannot be undone (cooking rice, burning paper).

(ii) Physical changes – no new substance; chemical changes – new substance formed.

Classification: melting of butter – physical; cooking of rice – chemical; rusting – chemical; dissolving sugar – physical; burning of paper – chemical; stretching a rubber band – physical.

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