

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; a diagram without labels gets half marks.
- Section D: only one of (A) or (B) is to be valued.

SECTION – A

10 × 1 = 10

1. C) the shape, speed and direction of motion of an object
2. B) opposite to the direction of motion
3. B) electrostatic force
4. B) weight
5. B) force ÷ area
6. B) repel each other
7. B) barometer
8. B) hurricanes
9. B) an electromagnet
10. A) diffusion

SECTION – B

3 × 2 = 6

11. Pressure = force ÷ area. A sharp knife has a very thin edge (small area), so the same force produces a much larger pressure and cuts easily.
12. Weight on the Earth = mass × g = 40 × 10 = **400 N**.
Mass on the Moon = **40 kg** (mass does not change).
13. In a gas the particles are far apart, the force of attraction between them is very weak and they move freely in all directions, so they spread to fill the container. In a solid the particles are tightly packed with strong attraction, so a solid keeps its own shape.

SECTION – C

2 × 4 = 8

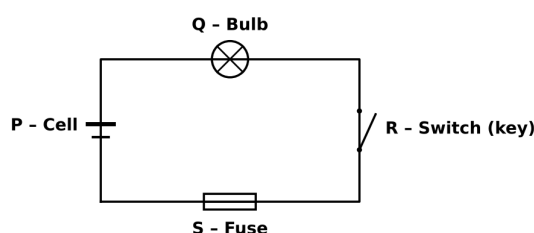
14. **P – cell:** source of electric energy that pushes the current.

[1 each]

Q – bulb: changes electric energy into light (and heat).

R – switch: opens or closes the circuit.

S – fuse: melts and breaks the circuit when too much current flows.



15. Any four: listen to weather warnings on radio/TV/phone; move to a cyclone shelter or a safe building when told to; keep a kit of drinking water, dry food, torch and medicines; do not go into the sea or

near the coast; stay indoors and away from electric poles and trees; switch off electric mains and gas; do not spread rumours. [1 each]

SECTION – D

2 × 8 = 16

16. A) Wind: the Sun heats different parts of the Earth unequally. Warm air expands, becomes lighter and rises, creating a low-pressure area. Cooler air from a high-pressure area moves in to take its place. This moving air is wind. [3 + 2 + 3]

Sea breeze (day): land heats faster than water; air over the land rises, and cool air from the sea blows towards the land.

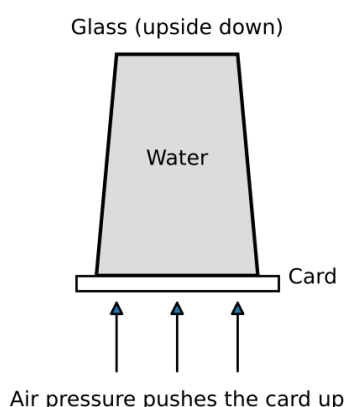
Land breeze (night): land cools faster; air over the sea is warmer and rises, so wind blows from land to sea.

Cyclone: over a warm sea, moist air rises fast, forming a deep low-pressure area. Air rushes in from all sides and starts spinning. Water vapour condenses, releasing heat, which keeps the air rising. This repeated cycle builds a huge, spinning storm with strong winds and heavy rain around a calm 'eye'.

16. B) Fill a glass with water to the brim and cover it with a card. Hold the card and turn the glass upside down, then remove your hand. **The card does not fall and the water stays in the glass** because air pressure pushes the card upward. [5 + 3]

(Other accepted activities: crushing of a heated tin can when cooled; a rubber sucker sticking to a smooth surface.)

Daily-life uses (any three): drinking with a straw; filling a dropper or syringe; suction hooks; vacuum cleaner; pumping air into tyres.



17. A) When current flows through a wire, the wire becomes hot. This is the **heating effect of electric current**. [2 + 2 + 2 + 2]

Appliances (any four): electric iron, room heater, toaster, kettle, geyser, hair dryer, electric stove.

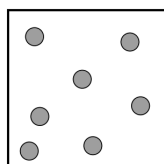
Nichrome is used for heating elements because it has high resistance (produces a lot of heat) and a very high melting point, and it does not oxidise easily when red hot.

LED bulbs give the same light using much less electricity, waste very little energy as heat and last much longer than filament bulbs.

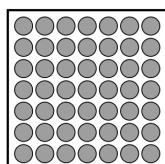
17. B) Comparison: [6 + 2]

Point	Solid	Liquid	Gas
Arrangement of particles	Closely packed, regular	Close, irregular	Far apart, random
Space between particles	Very little	More than solids	Very large
Force of attraction	Very strong	Weaker	Very weak
Shape and volume	Fixed shape, fixed volume	No fixed shape, fixed volume	No fixed shape or volume
Compressibility	Almost nil	Very little	Highly compressible

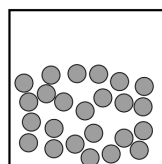
Boxes: P – gas, Q – solid, R – liquid.



P - Gas



Q - Solid



R - Liquid

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