Mark Scheme

Q1 (1 mark)

- Solid, liquid and gas

Q2 (1 mark)

- Solid

Q3 (1 mark)

- Liquid

Q4 (1 mark)

- Gas

Q5 (2 marks)
Any two:

- Fixed shape
- Fixed volume
- Particles closely packed
- Do not flow

Q6 (2 marks)
Any two:

- No fixed shape
- No fixed volume
- Particles far apart
- Easily compressed

Q7 (3 marks)

- Particles closely packed (1)
- Fixed positions (1)
- Vibrate in place (1)

Q8 (2 marks)

- Particles are close together (1)

- Particles can move past each other (1)

Q9 (3 marks)

- Gas particles move randomly (1)
- Particles collide with container walls (1)
- Collisions create pressure (1)

Q10 (4 marks)

- Deodorant particles spread out (1)
- Gas particles move randomly (1)
- Diffusion occurs (1)
- Smell spreads through room (1)

Q11 (4 marks)

- Particles gain energy (1)
- Vibrate more (1)
- Leave fixed positions (1)
- Move past each other as a liquid (1)

Q12 (6 marks)

Level 1 (1–2 marks)

- Basic statements about states of matter

Level 2 (3–4 marks)

- Some particle descriptions included

Level 3 (5–6 marks)

- Clear explanation using particle model throughout

Expected content:

- Solids have closely packed particles (1)
- Solids have fixed shape and volume (1)
- Liquids have particles that move past each other (1)
- Liquids have fixed volume but no fixed shape (1)
- Gases have particles far apart (1)
- Gases have no fixed shape or volume (1)

Example full-mark answer:
"In solids, particles are closely packed in fixed positions and only vibrate, giving solids a fixed shape and volume. In liquids, particles are still close together but

can move past each other, so liquids can flow and take the shape of their container. In gases, particles are far apart and move randomly, meaning gases have no fixed shape or volume."

Q13 (6 marks)

Level 1 (1–2 marks)

- Basic statements about heating or cooling

Level 2 (3–4 marks)

- Some particle movement explained

Level 3 (5–6 marks)

- Clear explanation of changes of state using particles

Expected content:

- Heating gives particles more energy (1)
- Cooling removes energy (1)
- Melting changes solid to liquid (1)
- Boiling changes liquid to gas (1)
- Condensation changes gas to liquid (1)
- Freezing changes liquid to solid (1)

Example full-mark answer:
"When matter is heated, particles gain energy and move more. During melting, particles in a solid vibrate more and leave their fixed positions to become a liquid. During boiling, particles gain enough energy to spread far apart and become a gas. Cooling removes energy from particles, causing condensation or freezing as particles slow down and move closer together."