Static Electricity MS

Q1 (1 mark)

Electrons

Q2 (1 mark)

Negative

Q3 (1 mark)

They repel

Q4 (1 mark)

A region where electric forces act around a charged object

Q5 (2 marks)

Any two:
Rubbing objects together
Friction
Transfer of electrons between materials

Q6 (2 marks)

Positive
Negative

Q7 (3 marks)

Rubbing causes electrons to move (1)
Electrons transfer from one object to another (1)
Objects become positively or negatively charged (1)

Q8 (3 marks)

Like charges repel (1)
Opposite charges attract (1)
Forces act between charged objects (1)

Q9 (3 marks)

Electric fields exist around charged objects (1)
Forces can act through the field, so objects do not need to touch for forces to act (1)

Q10 (3 marks)

Electrons are negatively charged (1)
Rod becomes negatively charged (1)
Cloth becomes positively charged (1)

Q11 (4 marks)

Both balloons gain negative charge as they have gained electrons (1)
Like charges repel (1)
Force acts between balloons (1)
Repulsion caused by electric fields (1)

Q12 (4 marks)

Charged object causes charges in paper to shift (1)
Opposite charges move closer to charged object (1)
Attractive force becomes stronger than repulsive force (1)
Paper is attracted without touching (1)

Q13 (6 marks)

Level 1 (1–2 marks)

- Basic statements about charges or rubbing objects
- Mentions attraction or repulsion

Level 2 (3–4 marks)

- Explains transfer of electrons
- Explains positive and negative charges
- Some explanation of forces between charges
- Mentions electric fields

Level 3 (5–6 marks)

- Static electricity caused by transfer of electrons
- Objects become positively or negatively charged
- Like charges repel and opposite charges attract
- Electric fields exist around charged objects

- Forces act through electric fields without contact
- Clear explanation linking charge transfer and electric forces

Model Answer:

Static electricity is produced when electrons transfer between objects as they are rubbed together. An object that gains electrons becomes negatively charged, while one that loses electrons becomes positively charged. Charged objects exert forces on each other through electric fields. Like charges repel and opposite charges attract. These electric fields allow forces to act even when the objects are not touching.