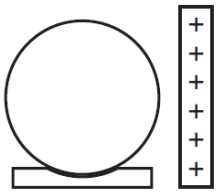
Electrostatics – 2021 IGCSE 0625

1. Nov/2021/QPaper_21/No.25

An uncharged, metal sphere is placed on an insulating support. A positively charged rod is brought close to the sphere, but does not touch it.



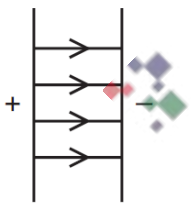
How do the charges in the sphere move and what is now the charge on the sphere?

	movement of charges	charge on sphere
A	negative charges move to the right of the sphere	positive
B	negative charges move to the right of the sphere	neutral
C	positive charges move to the left of the sphere	positive
D	positive charges move to the left of the sphere	neutral

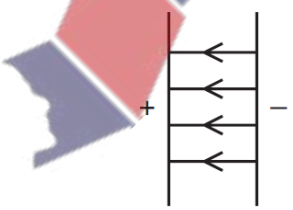
2. Nov/2021/QPaper_22/No.25

Which diagram shows the electric field pattern between two oppositely charged parallel metal plates?

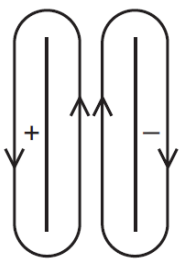
A



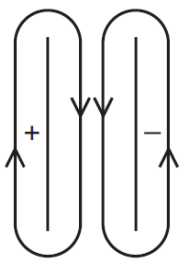
B



C



D



3. Nov/2021/QPaper_23/No.25

A stationary, charged particle is in a field.

Which fields can cause there to be a force on this particle due to its charge?

1 gravitational field

2 magnetic field

3 electric field

A 1 and 2 **B** 1 only **C** 2 and 3 **D** 3 only

4. Nov/2021/QPaper_31/No.8

(a) Fig. 8.1 shows the magnetic field pattern around a bar magnet.

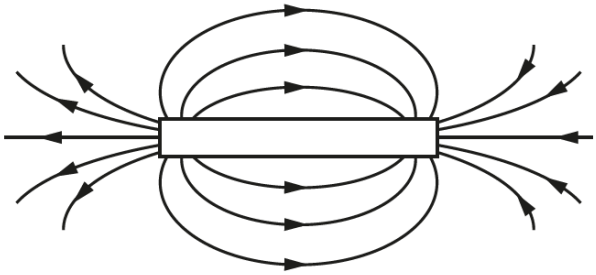


Fig. 8.1

(i) On Fig. 8.1, label the north and south poles of the magnet, using the letters N and S. [1]

(ii) A soft-iron bar is positioned as shown in Fig. 8.2.

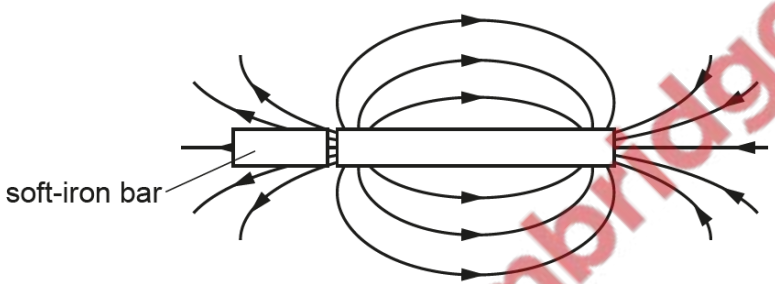


Fig. 8.2

State and explain what happens to the soft-iron bar.

.....

.....

..... [3]

(b) **(i)** A plastic rod is rubbed with a cloth. The plastic rod becomes positively charged.

Explain how the friction between the cloth and the rod causes the rod to become positively charged.

Use your ideas about the movement of charge.

.....

..... [2]

(ii) Plastic is an electrical insulator. Iron is an electrical conductor.

State **two** other materials that are electrical conductors.

1 .....

2 .....
[1]

[Total: 7]

(a) A girl has eight objects made of different materials.

The materials have different electrical and magnetic properties.

a piece of copper wire **a sheet of aluminium foil** **a glass rod** **an iron nail**

a piece of cotton cloth **a wooden block** **a plastic strip** **a paper bag**

Complete Table 6.1 by adding **one** object for each property. One is done for you.

Choose objects from the list. Each object may be used once, more than once or not at all.

Table 6.1

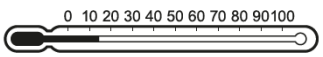
property	object
electrical conductor	
electrical insulator	
non-magnetic material	a wooden block
magnetic material	
can be charged by rubbing with a cloth	

[4]

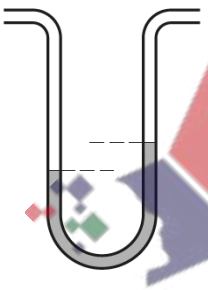
(b) Fig. 6.1 shows three measuring instruments.

Write the name of each measuring instrument next to its diagram.

The measuring instruments are **not** drawn to scale.



.....



.....

.....

Fig. 6.1

[3]

[Total: 7]

6. Nov/2021/QPaper_41/No.7

A plastic rod becomes negatively charged when it is rubbed with a woollen cloth.

(a) Describe, in terms of particles, how the rod becomes negatively charged when rubbed with the cloth.

.....

.....

..... [2]

(b) A light, conducting ball is at rest on a metal table. When the rod is brought close to the ball, as shown in Fig. 7.1, the ball jumps up towards the rod.

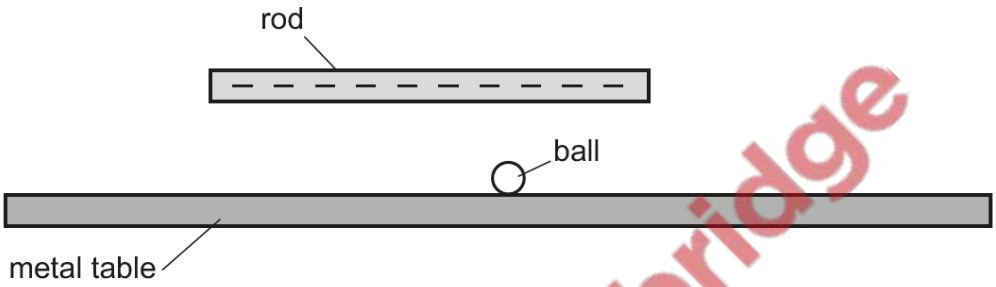


Fig. 7.1

(i) Explain why the ball jumps up.

.....

.....

.....

..... [3]

(ii) The ball touches the rod and falls back down to the table.

Explain why this happens.

.....

.....

..... [2]

[Total: 7]

(a) Fig. 8.1 shows a conducting object A, initially uncharged, held on an insulating stand. The positively charged rod B is brought close to object A.

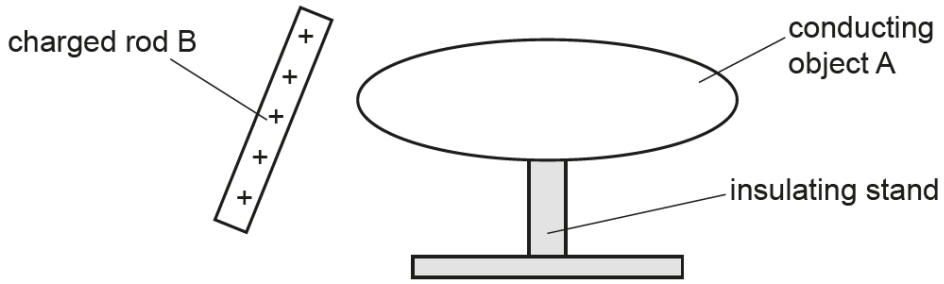


Fig. 8.1

(i) On Fig. 8.1, draw the distribution of charges on object A. [2]

(ii) A wire is connected from object A to earth.

State and explain any movement of charge.

statement .....

explanation .....

.....

.....

[2]

(b) There is a current in a wire of 0.65 mA for 2.2 minutes.

Calculate the charge that flows.

charge = ... [3]

[Total: 7]