WESTMINSTER INTERNATIONAL SCHOOL

FORM 2 PHYSICS EXEAT WORK TERM 3 2025

CAMBRIDGE IGCSE **PHYSICS**

CANDIDATE NAME

INSTRUCTIONS

- **Answer ALL questions**
- **Total Marks is 20.**
- **You may use a calculator.**

1.

(a) **(i)** State what is meant by the *direction* of an electric field.

.....

.....[1]

(ii) Fig. 9.1 shows a pair of oppositely-charged horizontal metal plates with the top plate positive.

Fig. 9.1

The electric field between the plates in Fig. 9.1 is uniform.

Draw lines on Fig. 9.1 to represent this uniform field. Add arrows to these lines to show the direction of the field. [3]

(b) Fig. 9.2 shows a very small negatively-charged oil drop in the air between a pair of oppositely charged horizontal metal plates. The oil drop does not move up or down.

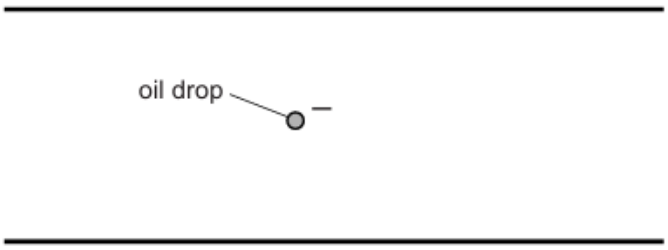

Fig. 9.2

(i) Suggest, in terms of forces, why the oil drop does not move up or down.

.....

.....[2]

(ii) Without losing any of its charge, the oil drop begins to evaporate.

State and explain what happens to the oil drop.

.....

.....[2]

[Total: 8]

2.

A plastic rod is rubbed with a cloth and becomes positively charged. After charging, the rod is held close to the suspended table-tennis ball shown in Fig. 9.1. The table-tennis ball is covered with metal paint and is uncharged.

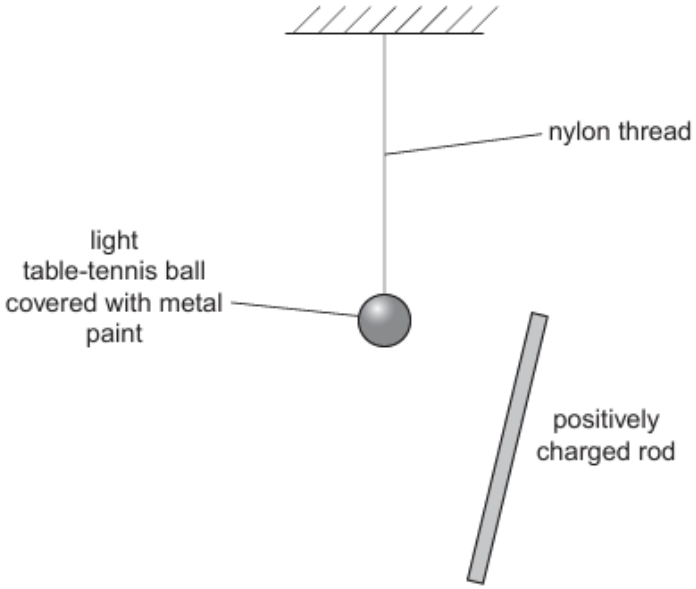

Fig. 9.1

(a) Describe what happens to the charges in the metal paint on the ball as the positively charged rod is brought close to the ball.

.....

.....

..... [1]

(b) The ball is attracted towards the charged rod.

Explain why this happens, given that the ball is uncharged.

.....

.....

..... [2]

(c) State the unit in which electric charge is measured.

..... [1]

[Total: 4]

3.

A digital watch is powered by a 1.3V cell. The cell supplies a current of 4.1×10^{-5} A (0.000041 A) for 1.6×10^{7} s.

Calculate

(a) the charge that passes through the cell in this time,

charge = ...[2]

(b) the resistance of the electrical circuit in the watch,

resistance = ...[2]

(c) the output power of the cell.

power = ...[2]

[Total: 6]

d.

A smaller metal sphere, also mounted on an insulating plastic stand, is uncharged.

This smaller sphere is moved close to the positively charged sphere. Fig. 8.1 shows the two spheres.

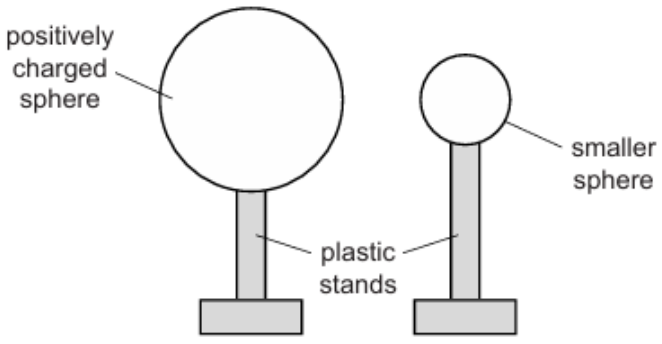

Fig. 8.1

(i) On Fig. 8.1, draw the distribution of charge on the smaller sphere. [2]

**********THE END**********