

- 3 (a) State what is meant by a line of force in

(i) a gravitational field,

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[1]

(ii) an electric field.

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.....

[2]

- (b) A charged metal sphere is isolated in space.

State one similarity and one difference between the gravitational force field and the electric force field around the sphere.

similarity:

difference:

[3]

- (c) Two horizontal metal plates are separated by a distance of 1.8 cm in a vacuum.

A potential difference of 270 V is maintained between the plates, as shown in Fig. 3.1.

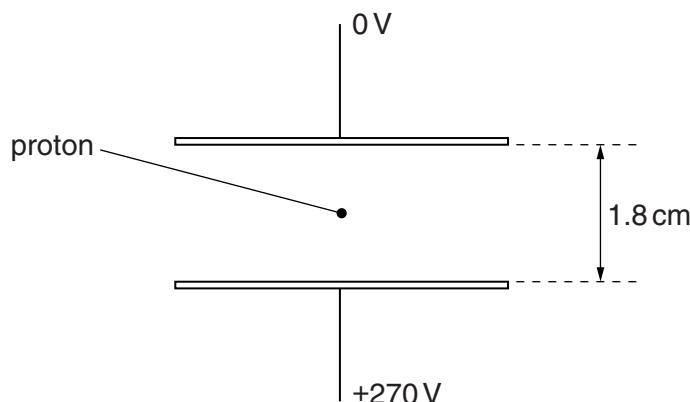


Fig. 3.1

A proton is in the space between the plates.

Explain quantitatively why, when predicting the motion of the proton between the plates, the gravitational field is not taken into consideration.

[4]