



A Level • OCR • Physics

 5 mins 5 questions

Multiple Choice Questions

Electric Fields

Electric Fields / Electric Field Lines / Electric Field Strength / Coulomb's Law /
Electric Field Strength of a Point Charge / Electric vs Gravitational Fields / Motion of
Charged Particles in an E Field

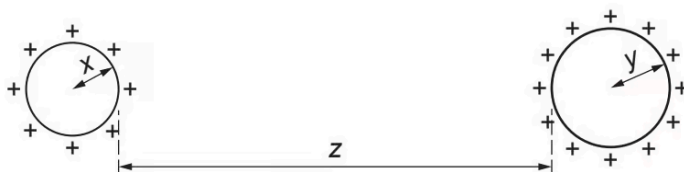
Easy (1 question)	/1
Medium (4 questions)	/4
Total Marks	/5

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Easy Questions

- 1 The diagram below shows two uniformly charged spheres separated by a large distance z .



The radius of the small sphere is x and the radius of the large sphere is y .

Which is the correct distance to use when determining the electric force between the charged spheres?

- A. z
- B. $x + z$
- C. $y + z$
- D. $x + y + z$

(1 mark)

Medium Questions

- 1 A beam of charged particles is not deflected when it passes through a region where both electric and magnetic fields are present.

Which statement is **not** correct?

- A. All the particles have the same speed.
- B. The resultant force on each particle is zero.
- C. The magnetic force is equal to the electric force on each particle.
- D. The magnetic field and the electric field are in the same direction.

(1 mark)

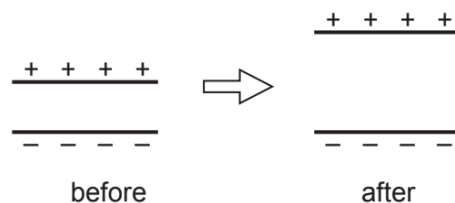
- 2 The electric field strength at a distance of $2.0 \times 10^{-8} \text{ m}$ from a nucleus is $3.3 \times 10^8 \text{ NC}^{-1}$.

What is the charge on the nucleus?

- A. $1.6 \times 10^{-19} \text{ C}$
- B. $1.5 \times 10^{-17} \text{ C}$
- C. $7.3 \times 10^{-10} \text{ C}$
- D. $3.8 \times 10^{-9} \text{ C}$

(1 mark)

- 3 Two isolated parallel capacitor plates have an equal and opposite charge. The separation between the plates is doubled. The charge on each plate remains the same but the potential difference between the plates doubles.

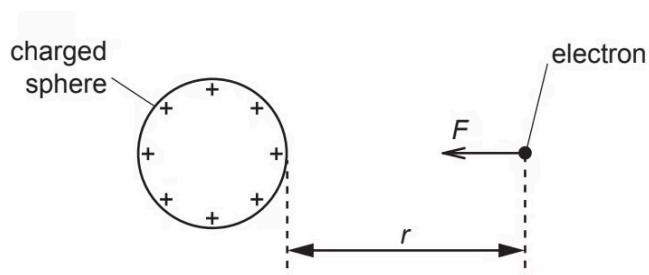


Which statement is correct?

- A.** The capacitance of the capacitor doubles.
- B.** The energy stored by the capacitor is halved.
- C.** The permittivity of free space doubles.
- D.** The electric field strength between the plates remains the same.

(1 mark)

- 4** An electron is released at a distance r from the surface of a positively charged sphere. It is attracted towards the centre of the sphere and moves until it touches the surface.



Which of the following statements is/are correct?

- 1. The area under the F against r graph is equal to work done on the electron.
- 2. The electric field strength E at distance r is equal to $\frac{F}{1.6 \times 10^{-19}}$
- 3. The work done on the electron is equal to $F \times r$.

- A.** Only 1
- B.** Only 1 and 2
- C.** Only 1 and 3
- D.** 1, 2 and 3

(1 mark)