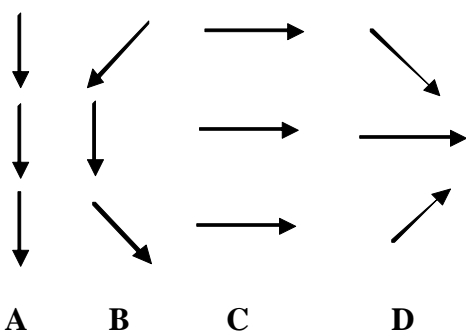
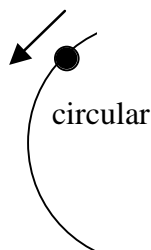


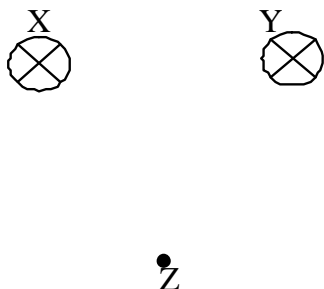
Support Worksheet – Topic 5, Worksheet 5

- 1 A proton follows the circular path shown. Which electric field could be responsible for this path?

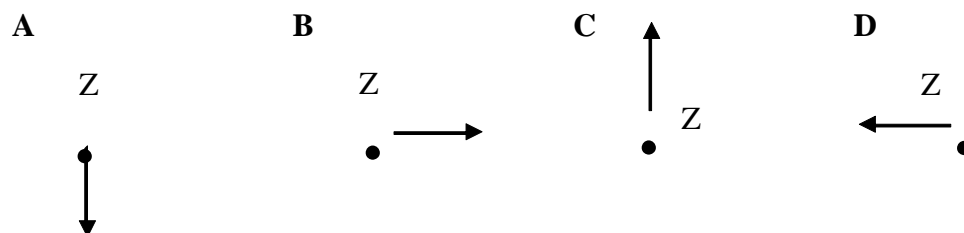


[1]

- 2 Two wires, X and Y, carry equal currents into the page as shown in the diagram to the right. Point Z is at the same distance from X and Y.

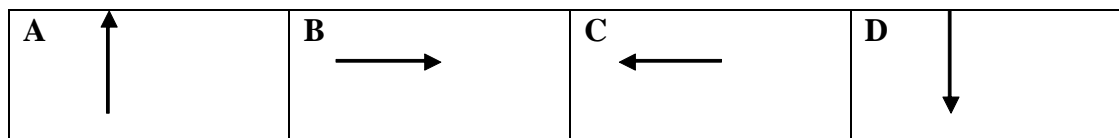
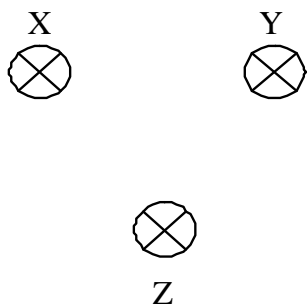


The direction of the magnetic field at Z is



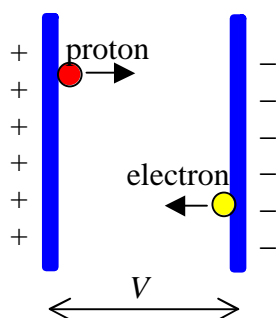
[1]

- 3 Three equidistant, parallel wires, X, Y and Z, carry equal currents into the page as shown. Which arrow shows the direction of the magnetic force on wire Z?



[1]

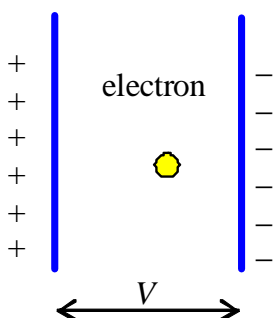
- 4 Draw the electric field around a negatively charged conducting sphere. [2]
- 5 Explain why, in electrostatics, the electric field inside a conductor is zero. [2]
- 6 Two parallel plates have a potential difference V across them. An electron and a proton are released from rest from opposite plates as shown in the diagram.



Calculate the ratio of the kinetic energy of the electron to that of the proton when each particle arrives at the opposite plate.

[2]

- 7 An electron is placed inside two parallel plates that are oppositely charged.



- a Draw the electric field pattern produced by the parallel plates. [3]
- b On the diagram draw an arrow to show the force on the electron. [2]
- c The plates are 6.2 cm apart and there is a potential difference of 120 V between them. Calculate the force on the electron. [2]