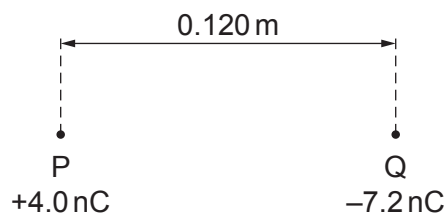


- 4 (a) State what is represented by an electric field line.

.....  
..... [2]

- (b) Two point charges P and Q are placed 0.120 m apart as shown in Fig. 4.1.



**Fig. 4.1**

- (i) The charge of P is +4.0 nC and the charge of Q is -7.2 nC.

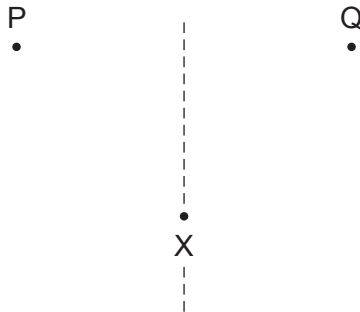
Determine the distance from P of the point on the line joining the two charges where the electric potential is zero.

distance = ..... m [2]

- (ii) State and explain, without calculation, whether the electric field strength is zero at the same point at which the electric potential is zero.

.....  
.....  
..... [1]

- (iii) An electron is positioned at point X, equidistant from both P and Q, as shown in Fig. 4.2.



**Fig. 4.2**

On Fig. 4.2, draw an arrow to represent the direction of the resultant force acting on the electron. [1]