Year 11 Physics NAME_____

Electric Fields Assignment

1.

a) State what an electric field is. /2

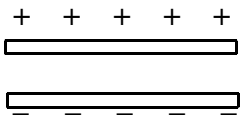
b) State what the arrows of electric field lines mean and what the density of the lines represents. /2

c) Copy the following diagrams and draw electric field lines around them:

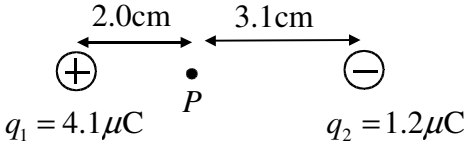
i. /1

ii. /2

iii. /2



2.



a) Calculate the electric field strength E at point P due to q_1. /3

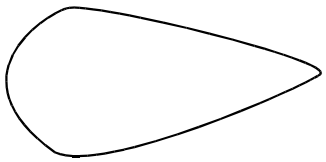
b) Calculate the electric field strength E at point P due to q_2. /3

c) Hence calculate the electric field strength at point P due to both q_1 and q_2. /3

3.

a) State the electric field on the inside of a positively charged metal tin /1

b) Describe the location of the charges on this negatively charged metal conductor:

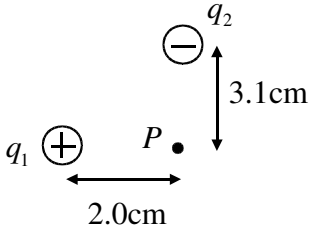


/2

TOTAL /21

[Bonus question] Consider the charges in question 2.

If q_2 is moved instead to a position 3.1 cm directly above P, the charges will be positioned like this:



Calculate the electric field strength at P.