

**The current in a wire is the amount of charge passing plane per unit time.**

$$I = \Delta Q / \Delta t \text{ [ coulomb/second]}$$

**1 ampere = 1 coulomb per second**

How can we relate the current **I** to

**n** - the number of charge particles per unit volume

**v<sub>d</sub>** - the drift velocity ,

**q** - the charge on each particle

**A** - the cross-sectional area

**Δt** - the increment of time ?

How does the current change with each variable?

1) increases quadratically

2) increases proportionally

3) does not change

4) decreases inversely

5) decreases as an inverse square relationship