

Name: Tanjim Reza

Student ID: 20101065

Course: CSE250

Section: CSE06

Assignment: 01

Ans: to the que no: 01

According to the question and to our knowledge, the smallest possible charge $e = 1.602 \times 10^{-19} \text{ C}$.

So, if we want to know which one is impossible to exist we have to check the basic high school formula Ne where e is e and N is any integer numbers starting from 1.

So, now, if we see oe then its 0 and that does not validate in this case. ~~an~~ And from all the options -3.25 and $+3.25$ are not integers so they do not follow our path and are impossible to exist.

Ans: to the que no: 02

$$-1.602 \times 10^{-19} \text{ C for 1 electron}$$

$$\frac{1 \text{ C}}{-1.602 \times 10^{-19}}$$

$$-6.8 \text{ C for } \frac{-6.8}{-1.602 \times 10^{-19}}$$

$$= 4.2446 \times 10^{19}$$

Ans: to the que no: 03

Positive charges tend to move from V_{high} to V_{low} (Blue/Red color codes from lectures made easy). Positive and Negative both want to release potential energy and want to go to lower potential energy location, ~~At~~ And current flows from higher voltage to lower voltage. These are rules for this question, rest options are wrong.

* Follows the gravitational potential and potential energy for positive.

~~* If negative doesn't go from~~

* If negative charge goes from higher voltage to lower voltage then the work done is negative (lecture: 4) which will require external energy. So it will go from lower voltage to higher voltage.

Ans: to the que no: 04

Given,

$$V_A = -17V$$

$$V_B = -8V$$

In the middle, $q = -3C$

Basic Rule:

Negative charge goes from ~~high~~ lower voltage area to higher voltage area. (Lecture 6 and 5 diagram).

Here,

$\therefore -17V < -8V$ So, q will go to $-8V$ which is from middle to Right direction ($V_A \rightarrow V_B$)

Ans: to the que no: 05

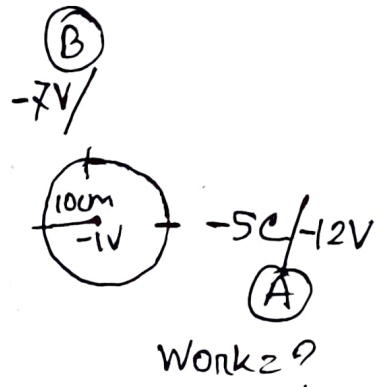
We know,

$$\text{work done,} = q \Delta V$$

$$= -5 (-12 - (-7))$$

$$= 25 \text{ Joules}$$

A



Ans: to the que no: 06

$$q = -5\text{C}$$

$$V_A = -15\text{V}$$

$$V_B = -8\text{V}$$

$q \rightarrow \text{Neg} \rightarrow \overset{\vee}{\text{Low}} \rightarrow \text{High}$
 $\therefore V_A(-15\text{V}) \rightarrow V_B(-8\text{V})$

$$\therefore \text{Work done,} = q \Delta V$$

$$= -5 (-15 - (-8))$$

$$= 35 \text{ Joules}$$

Ans: to the que no; 07

$$q = 8 \mu\text{C} = 8 \times 10^{-6} \text{ C}$$

$$t = 5 \text{ s}$$

$$\therefore A = \frac{8 \times 10^{-6}}{5} = 1.6 \times 10^{-6} \text{ A}$$

current flow

A