Elektrostatika Memo
November 2018

1.1 C✓✓

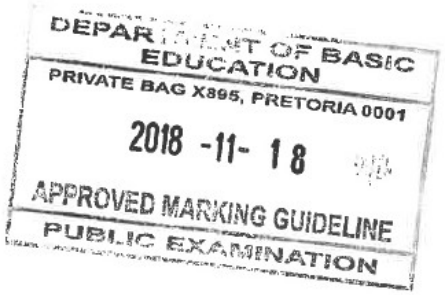
1.7 B✓✓

QUESTION 10/*VRAAG 10*

10.1 $n = \frac{Q}{e}$ ✓or/*of* $\frac{Q}{q_e}$

$30 = \frac{Q}{-1,6 \times 10^{-19}}$ ✓

$Q = -4,8 \times 10^{-18}$ C ✓



Accept/Aanvaar

$n = \frac{Q}{e}$ ✓or/*of* $\frac{Q}{q_e}$

$30 = \frac{Q}{1,6 \times 10^{-19}}$ ✓

$Q = 4,8 \times 10^{-18}$ C ✓ (3)

10.2 Unlike/opposite charges✓ attract✓/*Ongelyksoortige/teenoorgestelde ladings trek mekaar aan.* (2)

10.3 The net/total charge in an isolated/closed system remains constant/is conserved ✓✓*Die netto/totale lading in 'n geïsoleerde/geslote sisteem bly konstant.* (2)

NOTE/*LET WEL*:
If any of the underlined words/phrases are omitted in the correct context: minus 1 mark.)
Indien enige van die onderstreepte woorde/frases in die korrekte konteks weggelaat is: minus een punt.)

10.4 **POSITIVE MARKING FROM 10.1/POSITIEWE NASIEN VANAF 10.1**

$Q_{net/netto} = \frac{Q_1 + Q_2}{2}$ ✓

$= \frac{4 \times 10^{-18} + (-4,8 \times 10^{-18})}{2}$ ✓✓

$= -4 \times 10^{-19}$ C ✓ (4)

[11]

1.9 D✓✓ (2)

QUESTION/*VRAAG 10*

10.1 Neutral object: Has equal amount of both protons and electrons✓
Charged object: Has either gained or lost electrons. ✓
Neutrale voorwerp: Gelyke hoeveelhede protone en elektrone. ✓
Gelaaide voorwerpe het elektrone gewen of verloor.✓ (2)

10.2 Gain ✓/*Bygevoeg* ✓ (1)

10.3 $n = \frac{Q}{e}$ ✓

$n = \frac{3,5 \times 10^{-15}}{1,6 \times 10^{-19}}$ ✓

= 21875 ✓ (electrons/*elektrone*) (3)

10.4.1 When the charged plastic ruler is brought closer to the uncharged pieces of paper, the paper is polarised. ✓ The negative charges on the paper are repelled by the negative charges on the ruler. ✓ This leaves the side of the paper closest to the ruler positive. ✓
Die stukkies papier word gepolariseer ✓ sodra die gelaaide liniaal nader gebring word. Die negatiewe ladings van die papiertjies word afgestoot ✓ deur die negatief gelaaide liniaal. Dit laat die kant van die papier wat na die liniaal toe wys positief ✓ en die papier word aangetrek. (3)

10.4.2 Photocopier✓/*Fotostaatmasjien* ✓
Finger printing/*Vingerafdrukke*
Spray painting/*Spuitverf* (Any one/*Enige een*) (1)
[10]

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1.8 C✓✓ (2)

1.9 D✓✓ (2)

QUESTION 10/*VRAAG 10*

10.1 B ✓ (1)

10.2 B to A✓
B tot A (1)

10.3 $Q_{new/nuut} = \frac{Q_1 + Q_2}{2}$ ✓

$= \frac{(+3 \times 10^{-6} + (-2 \times 10^{-6}))}{2}$ ✓

$= 5 \times 10^{-7}C$ ✓ (3)

10.4

OPTION 1/*OPSIE 1*
$n = \frac{Q}{e}$ ✓
$= \frac{5 \times 10^{-7} - (-2 \times 10^{-6})}{1,6 \times 10^{-19}}$ ✓
$= 1,56 \times 10^{13}$ electrons✓
elektrone

OPTION 2/*OPSIE 2*
$n = \frac{Q}{e}$ ✓
$= \frac{5 \times 10^{-7} - (+3 \times 10^{-6})}{-1,6 \times 10^{-19}}$ ✓
$= 1,56 \times 10^{13}$ electrons✓
elektrone

(3)
[8]

1.8 D✓✓ (2)

QUESTION 10/*VRAAG 10*

10.1 In an isolated system the total/net charge remains constant✓✓
In 'n geïsoleerde sisteem bly die totale/netto lading konstant

ACCEPT/*AAVAAR*
In an isolated system charge is neither created nor destroyed
Lading word nie geskep of vernietig in 'n geïsoleerde sisteem nie. (2)

10.2 The water molecule has a positive charge ✓and is attracted toward the rod. ✓
Die water molekuul het 'n positiewe lading en word na die staaf aangetrek

OR/*OF*
The positive end✓ of the water molecules are attracted✓to the negatively charged rod.
Die positiewe ent van die watermolekule word aangetrek na die negatiewe staaf.

OR/*OF*
Unlike charges attract. ✓ The positive end of the water molecules are attracted ✓to the negatively charged comb.
Ongelyksoortige ladings trek mekaar aan. Die positiewe ent van die watermolekule word aangetrek na die negatief gelaaide staaf. (2)

10.3 $n = \frac{Q}{e}$ ✓**OR/*OF*** $Q = nq_e$

$Q = 10^{14}$ ✓x $(1,6 \times 10^{-19})$ ✓

$= 1,6 \times 10^{-5}$C (0,000016 C) ✓ (4)

[8]