Final Science 10 pre-test Name:

(1) Draw the Bohr - Rutherford + lewis diagrams for the element in period 3 that is an inert gas.

(2) (a) Balance the following reaction, draw its particle model, and name the reaction.

$$HCl + Mg(OH)_2 \longrightarrow MgCl_2 + H_2O$$

Key:

H = □
Mg = ●
Cl = △
O = ○

(b) If 20g of HCl reacts with 35 g of $Mg(OH)_2$, and 30g of $MgCl_2$ are produced, how much water is produced?

(c) name the electrolytes in the equation above

(3) $V = IR$ $P = VI$ $E = P \cdot t$

(a) $I = 600\ mA$ $R = 3\ \Omega$ $V =$ _____ V

(b) $V = 8\ V$ $R = 6\ \Omega$ $I =$ _____ A

(c) $V = 12\ V$ $I = 6\ A$ $P =$ _____ W

(d) $V = 60\ V$ $I = 30\ A$ $P =$ _____ kW

(e) $P = 8\ W$ $t = 20\ s$ $E =$ _____ Joules

(f) $P = 20\ W$ $t = 4\ min$ $E =$ _____ J

(g) $P = 100\ W$ $t = 4\ h$ $E =$ _____ W·h

(h) $P = 8\ kW$ $t = 10\ h$ $E =$ _____ kW·h

(i) $V = 6\ V$ $I = 2\ A$ $t = 20\ s$ $E =$ _____ J

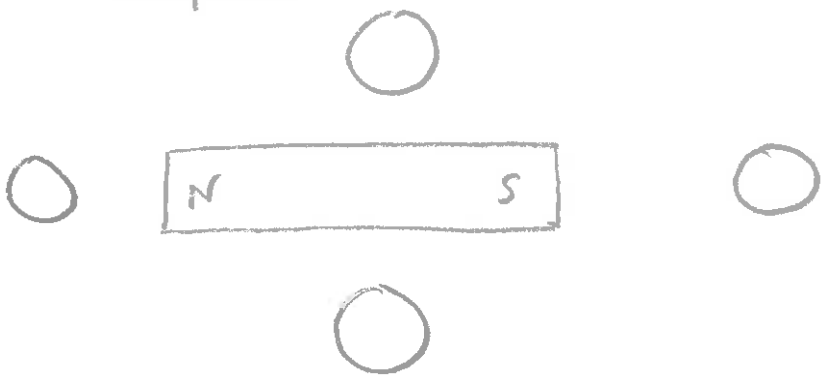
(4) (a) Useful energy = 8000 J
Consumed energy = 12 kJ
Energy Efficiency =

(b) Lost energy = 2500 J
Consumed energy = 10000 J
Energy Efficiency =

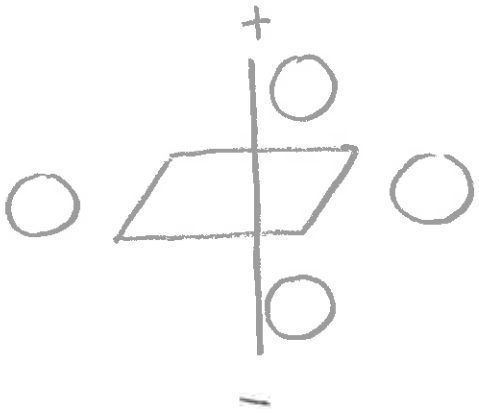
(c) Energy Efficiency can be increased by:

(5) Draw the magnetic field and indicate the direction (NORTH) of the compasses:

(a)

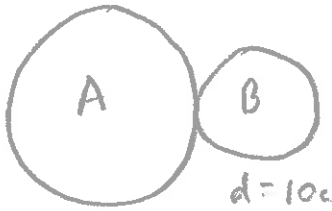


(b)



(6) Gears: A = driver
B = driven

(a)



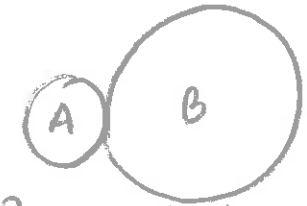
d = 10cm

d = 20cm

60 rpm

speed = ? _____

(b)



10 teeth

30 teeth

90 rpm

speed: ? _____

(7) a) A pH of 3 is _____ more _____ than a pH of 6.

b) A pH of 13 is _____ more _____ than a pH of 8.

(8) Convert each to PPM

(a) $\frac{5\ g}{L}$

(b) 0.02 % $\left(\frac{m}{V}\right)$

(c) $\frac{2\ mg}{L}$

(d) 0.003 % $\left(\frac{m}{V}\right)$

(e) 4g in 250 mL

(f) 25g in 1000000 mL

(9) (a) Photosynthesis uses _____ to produce _____

(b) Respiration uses _____ to produce _____

(10) Lewis Diagram (MATCH)

a) halogen
b) alkali metal
c) inert (noble) gas
d) alkaline earth metal

(11) periods = rows represent

groups = families represent

(12) Conductivity is increased by:

(13) (MATCH)

Switch ___
rubber on wire ___
copper wire ___
fuse ___
light bulb ___
battery ___

a) power supply
b) control
c) energy transformation
d) conduction
e) insulation
f) protection

(14) Energy

R = renewable

N = non renewable

Wind ___

Solar ___

Fossil fuels ___

nuclear ___

tidal ___

geothermal ___

hydroelectric ___

(15) Heat is:

Temperature is

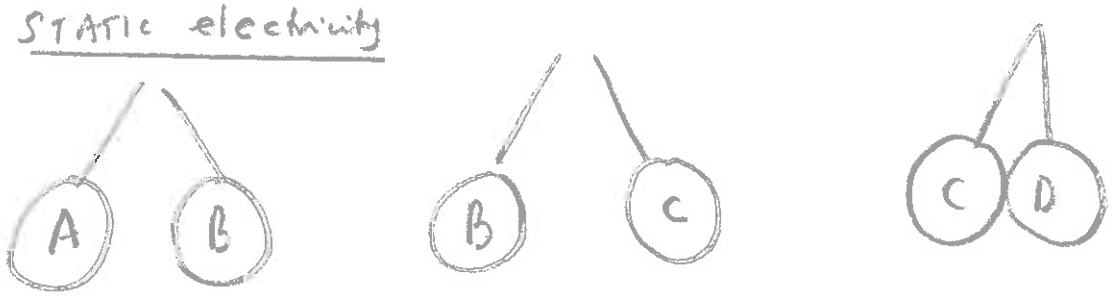
(16) Name 3 consequences of higher concentrations of greenhouse gases

(17) If Ca loses 2 valence electrons, its charge is?

(18) The 3 components of the Fire Triangle are:

(19) How does global warming affect SALINITY?

(20) STATIC electricity



if A is positive, how will D react to B?

(21) 3 types of guiding carriages are

(22) 6 characteristics of links are:

(23) Name motion transmission systems. Which are now reversible?

(24) Name motion transformation systems. Which are now reversible?

(25) Define:
(a) primary productivity

(b) trophic network

(c) Species richness

(d) permafrost

(e) thermohaline circulation

(f) Catchment area (watershed)

(g) Anticyclone

(h) cyclones

(i) cold and warm front

(j) Carbon cycle

(k) abiotic vs biotic factors

(l) high + low tides

(m) biological cycles