

PHYSICAL SCIENCES GRADE 10

QUESTION 1

- 1.1 Ionisation (1)
- 1.2 Physical (1)
- 1.3 Alloy (1)
- 1.4 Covalent or Hydrogen bond (1) [4]

QUESTION 2

2.1	A	B	C	D
2.2	A	B	C	D
2.3	A	B	C	D
2.4	A	B	C	D
2.5	A	B	C	D
2.6	A	B	C	B
2.7	A	B	C	D

[7 X 2 = 14]

TOTAL SECTION A : 18

QUESTION 3

- 3.1 An electrolyte is a substance that, when dissolved in water, forms a solution that **contains ions** and can therefore conduct an electric current. Eg NaCl. A non-electrolyte is a substance that dissolves in water but the solution will **contain no ions**. Therefore it cannot conduct electric current. Eg. Sugar
- 3.2
A = Chloride
B = Carbonate
C = Sulphate
- 3.3.1a) $\text{KCl}_{(s)} \rightarrow \text{K}^+_{(aq)} + \text{Cl}^-_{(aq)}$
- 3.3.1b) $\text{HCl}_{(g)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{Cl}^-_{(aq)} + \text{H}_3\text{O}^+_{(aq)}$
- 3.3.2 a) Dissociation
- 3.3.2 b) Ionisation
- 3.4) Diluted solutions will contain small amounts of dissolved substances per unit volume
Concentrated Solutions will contain a large amount of dissolved substances per unit volume

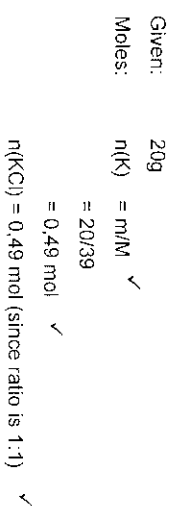
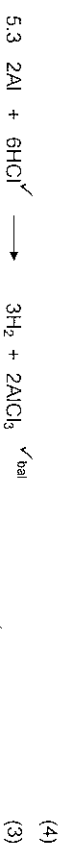
QUESTION 4

- 4.1 1 mark each for transpiration, condensation, precipitation, collection. ✓✓✓
1 mark for showing correct direction using arrows for the cycle. ✓ (4)
- 4.2 Heat gained = $334000 \times 0,2 = 66800 \text{ J}$ (2)
- 4.3 Hydrogen bonds ✓✓ (2)
- 4.4.1 $\text{N}_2 + \text{O}_2 + \text{LIGHTNING} \rightarrow 2 \text{NO}$ ✓
 $2 \text{NO} + \text{O}_2 \rightarrow 2 \text{NO}_2$ ✓ (1 mark for correct equation and balancing)
 $3 \text{NO}_2 + \text{H}_2\text{O} \rightarrow 2 \text{HNO}_3 + \text{NO}$ ✓ (3)
- 4.4.2 Explosives in mining ✓ (1)
- 4.4.3 Denitrification ✓✓ (2)
- 4.4.4 Ammonia ✓ (1)
- 4.4.5 Overuse causes Eutrication. ✓
Through leaching too much nitrates enter the lakes and algae growth increases removing the oxygen and aquatic life die. ✓ (2)

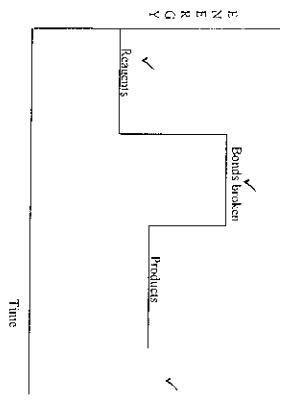
[17]

QUESTION 5

- 5.1 Covalent: overlapping of half filled orbitals ✓ ✓ (2)
- Ionic bonding: transfer of electrons (one gains and one loses) ✓ (2)
- 5.2 Al... ✓



5.5



[16]

TOTAL: 70 MARKS