

- use red to mark each correction
and add up each question for a total
- use blue to correct any question
requiring fixing

Chemical Reactions Review Exemplar

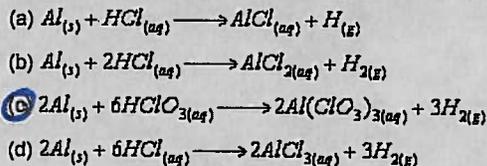
/75

Part A: Multiple Choice (10 marks)

Select the best answer and then transfer your answers to the SCANTRON provided.

- What is the general form of a single displacement reaction for a metal reacting with an ionic compound?
(a) $A + BX \rightarrow ABX$ (c) $AX + BY \rightarrow AY + BX$
(b) $A + BX \rightarrow AX + B$ (d) $AX + BY \rightarrow AB + XY$
- What is the name given to the ranking of the relative reactivity of metals or halogens in aqueous reactions?
(a) reactivity series **(c)** activation series
(b) activity series (d) reaction series
- What is the balanced chemical equation for the single displacement reaction of solid magnesium in an aqueous solution of hydrochloric acid?
(a) $Mg_{(s)} + 2HClO_{3(aq)} \rightarrow Mg(ClO_3)_2(aq) + H_{2(g)}$
(b) $Mg_{(s)} + 2HClO_{2(aq)} \rightarrow Mg(ClO_2)_2(aq) + H_{2(g)}$
(c) $Mg_{(s)} + 2HCl_{(aq)} \rightarrow MgCl_{2(aq)} + H_{2(g)}$
(d) The reaction does not occur.
- Element A can displace element B from compound BX and element B can displace element C from compound CX. With this information, what can be said about the reaction of A + CX?
(a) The reaction will not occur.
(b) A will displace the X from CX.
(c) A will displace C from CX.
(d) A, C and X will combine to form a single product.
- Element A can displace element B from compound BX but element B cannot displace element C from compound CX. With this information, what can be said about the reaction of A + CX?
(a) The reaction will not occur.
(b) A will displace the X from CX.
(c) A will displace C from CX.
(d) A, C and X will combine to form a single product.
- Which halogen(s) can be displaced by bromine?
(a) fluorine (c) iodine
(b) chlorine (d) all halogens
- What is (are) the product(s) that can form when a metal is reacted with water?
(a) a metal oxide and an acid
(b) a metal oxide and a base
(c) a metal hydroxide and oxygen gas
(d) a metal hydroxide and hydrogen gas

- What is the balanced chemical equation for the reaction of solid aluminum and hydrochloric acid?



- What test can be used to show a positive test for the gas that forms when solid magnesium reacts with hydrochloric acid?

(a) litmus paper (c) limewater
(b) a burning splint **(d)** a glowing splint

- The correct name for $Sn(S_2O_2)_2$ is

(a) stannic disulphate (c) stannous thiosulphate
(b) stannous thiosulphate (d) stannic thiosulphite

Part B: True/False (10 marks) Select A for True and B for False.

- Balancing an equation is required to satisfy the law of conservation of mass. **T**
- Magnesium hydroxide decomposes into magnesium oxide and water. **T**
- Sulphuric acid decomposes into water and sulphur trioxide gas. **T**
- It is important to check the solubility table for a double displacement reaction. **T**
- The formation of water is one of the three clues that a double displacement reaction has occurred. **T**
- A binary compound will decompose into its elements. **F**
- There is only one correct name for HgI **T**
- In a reaction of $F_{2(g)} + NaCl_{(aq)}$, F_2 's sound would be ROARRRRRR! (i.e. more reactive) **T**
- Colour change is one of the three clues that a double displacement reaction has occurred. **F**
- A reaction will occur between $Pb(OH)_{2(aq)}$ and $H_2SO_{4(aq)}$. **F**

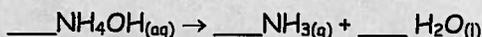
Part C: Short Answer (55 marks)

Answer the following questions in the space provided.

21. Complete the following chart by either writing the chemical formula or name. (15 marks)

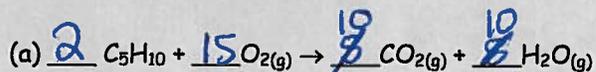
Chemical Name	Chemical Formula
lithium fluoride	LiF
calcium sulphide	Ca_2S
chromium(VI)chloride	CrCl_6
gold nitride	AuN
niobous bihypophosphite	$\text{Nb}_2(\text{HPO}_2)_3$
nickelic pernitrite	$\text{Ni}(\text{NO})_2$
PCl_3 Phosphorus trichloride	PCl_3
	As_2O_3
argon gas	$\text{Ar}(\text{g})$
perphosphoric acid	$\text{H}_3\text{PO}_5(\text{aq})$
fluorine gas	$\text{F}_2(\text{g})$
cyanic acid	$\text{HCN}(\text{aq})$
perboric acid	$\text{HBO}_4(\text{aq})$
hydrocyanic acid	$\text{HOCN}(\text{aq})$
cupric hydrogen dichromate	$\text{Cu}(\text{HCr}_2\text{O}_7)_2$

22. Balance the following equation AND then write its word equation (4 marks)

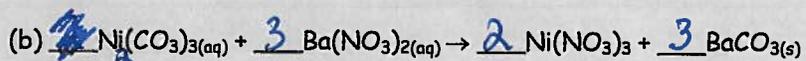


aqueous ammonium hydroxide produces gaseous ammonium plus water

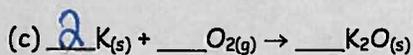
23. Balance the following equations and identify the type of reaction (6 marks)



Type: complete combustion

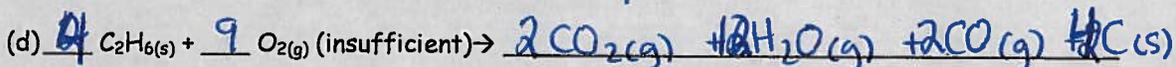
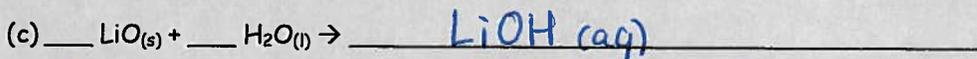
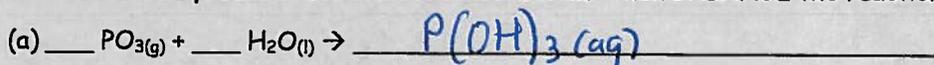


Type: double displacement

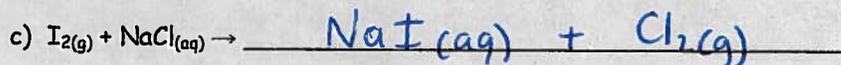
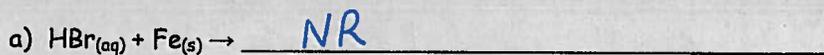


Type: synthesis

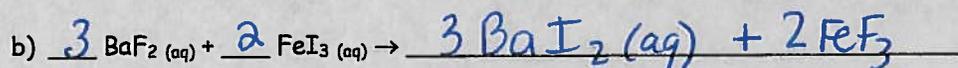
24. Predict the products for the reactions below. Then **BALANCE** the reaction. (10 marks)



25. With use of the activity series, predict the products for each reaction. If there is no reaction, write NR, meaning no reaction. If a reaction occurs, complete the equation and balance it!!! (5 marks)



26. Predict the products of the following reactions and then if required, use the solubility chart provided to predict if a reaction will occur. Make sure to include states and BALANCE the equation. (6 marks)



27. Pure sodium metal reacts violently when placed in water. With reference to ΔEN , explain why this happens. Make sure to include a balanced chemical equation, with states. (3 marks)

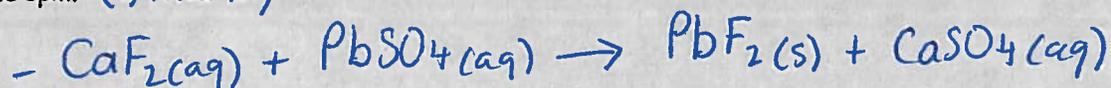


sodium has a higher EN than hydrogen \therefore more reactive

28. Identify the most reactive non-metal on the periodic table. Explain why the element you chose is the most reactive non-metal. (3 marks)

- Fluorine is the most reactive non-metal
- it is most reactive b/c it is farthest right & up

29. A chemical manufacturing plant accidentally spilt toxic lead(II)sulphate into a tributary that feeds a city's local drinking water supply. Explain chemically (include a chemical equation), why water quality engineers chose to add calcium fluoride to the tributary in order to clean the spill. (3 marks)



- They add $\text{CaF}_2 (\text{aq})$ b/c it reacts with PbSO_4