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CHEMISTRY

PHYSICAL CHEMISTRY

LEVEL & BOARD:	OCR (AS - LEVEL)
TOPIC:	Atoms, Amount, Equation & Reactions
PAPER TYPE:	QUESTION PAPER 2
TOTAL QUESTIONS	07
TOTAL MARKS	17

Compounds, Formulae and Equations

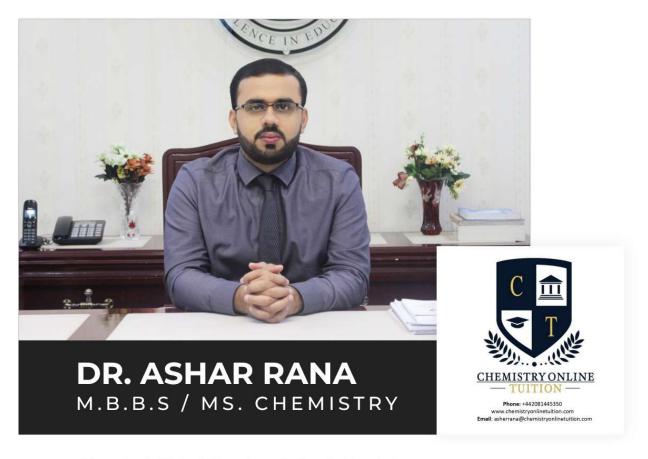
	chemist carries out reactions involving sulfur dioxide (SO_2) and sulfur loxide (SO_3) .
	eaction 1: Sulfur dioxide is reacted with water, forming an acidic solution.
R	eaction 2: Sulfur trioxide is reacted with water, forming a strong acid.
i.	Write equations for Reaction 1 and Reaction 2.
	[3]
ii.	Predict the structure and bonding of SO ₃ .
	[1]
iii.	SO ₃ forms sulfuric acid (H ₂ SO ₄) when reacted with water.
	Suggest a 'dot-and-cross' diagram for the structure of the sulfate ion (SO_4^{2-}) found in sulfuric acid.
	Show outer shell electrons only.

2.	Bromine and mercury react with many elements and compounds. Predict the formula of the compound formed when bromine reacts with sodium.
	[1]
3.	This question is about inorganic compound
	(a) Silver nitrate, AgNO ₃ , reacts with sodium chloride, NaCl, in aqueous solution.
	A student mixes a solution of AgNO ₃ with an equal volume of NaCl solution.
	i. Describe what the student would observe during this reaction.
	[1]
	ii. Write the equation for the reaction between AgNO ₃ and NaCl.
	[4]
	(b) Compounds of potassium have many uses.
	i. Identify a compound of ammonium ions that could be used to fertilize acidic soil with a pH of 4.2 and raise it to pH 6.8.

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ii.	Potassium bromide, KBr, is an ionic compound used in photography. Potassium bromide can be prepared by reacting potassium metal with bromine, Br ₂ . Write the equation for the reaction of potassium with bromine to form potassium bromide.
	[1]
iii.	
	prine, with an atomic number of 17, is in Period 3 of the Periodic Table. orine is a Group 7 element.
Prec	lict the formula of a chloride ion.
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	[1]
	question is about compounds of Group 3 elements. on will combine directly with oxygen.
Wri	te the equation for the reaction between boron and oxygen.

salt h	nas the e	mpirical	formula	Na ₃ PO ₄ .	Suggest	the forn	nulae of the
	in this sal						



- · Founder & CEO of Chemistry Online Tuition Ltd.
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