



30	C	FeCl ₂ is oxidized as the oxidation state of Fe increases from +2 in FeCl ₂ to +3 in FeCl ₃ . It is a reducing agent as it reduces Cl from 0 in Cl ₂ to -1 in FeCl ₃ .
31	C	The average rate of reaction can be calculated by dividing the total volume of gas with the time taken. The smallest volume of gas produced per unit time will give the slowest average rate of reaction and thus option C is the answer.
32	B	Since the oxide of element X reacts with acid only but not with the base, it must be a basic oxide. Basic oxide is a metallic oxide. Hence, option B is the answer.
33	C	As the number of electron shells increases, the electrostatic forces of attraction between the positive nuclei and the electrons are weaker and hence, an electron is more easily lost. The other options correspond with the trends given in the table.
34	B	As we go down group VII of the periodic table, colour intensity of the element increases, melting and boiling point increases while reactivity decreases. Since astatine is at the bottom, it must be black in colour, solid at room condition and no displacement reaction with a more reactive bromine.
35	D	Y gives no reaction in all 3 reactions hence it must be the least reactive. Z is most reactive as it is the only metal that gives an explosive reaction with dilute acid. Comparing W and X, X reacts more vigorously in all 3 reactions compared to W hence, the order of reactivity is Z>X>W>Y.
36	D	Question is asking for the advantages of recycling metals. Statement 1 talks about how energy is conserved when recycling is done. Statements 3 and 4 talk about metals being a finite resource and the need to recycle and conserve it. Statement 2 talks about the processes involved in recycling metals which is not a reason in favour of recycling metals.
37	A	Dry air comprises of 78% nitrogen, 21% oxygen and 1% other gases with argon as the main constituent.
38	D	By elimination, only option D is correct. Alkane reacts with halogens in the presence of UV light in a substitution reaction. Propane contains 3 carbon atoms. Alkanes have general formula C _n H _{2n+2} . The products of complete combustion are carbon dioxide and water.
39	C	This is an addition polymerization reaction where the double bond breaks and the repeat unit is added across to form a long chain polymer.
40	C	Acidified potassium manganate (VII) is an oxidizing agent and would change colour in presence of a reducing agent. In the given options, only ethanol has the ability to undergo oxidation to give ethanoic acid and hence acts as a reducing agent.