

**1. Nov/2022/Paper\_11/No.23**

Which statement about ammonia or the ammonium ion is correct?

- A Ammonia gas is produced when an aqueous solution containing the ammonium ion is reacted with a strong acid.
- B Silver iodide is soluble in a concentrated aqueous solution of ammonia.
- C The ammonium ion has the same number of electrons as a methane molecule.
- D The square planar ammonium ion contains a dative covalent bond.

**2. Nov/2022/Paper\_11/No.24**

Sulfur dioxide can be catalytically oxidised by an oxide of nitrogen in the atmosphere.

Which reaction shows how the catalyst is reformed?

- A  $\text{N}_2 + 2\text{O}_2 \rightleftharpoons 2\text{NO}_2$
- B  $4\text{NH}_3 + 5\text{O}_2 \rightarrow 4\text{NO} + 6\text{H}_2\text{O}$
- C  $\text{N}_2 + \text{O}_2 \rightarrow 2\text{NO}$
- D  $\text{NO} + \frac{1}{2}\text{O}_2 \rightarrow \text{NO}_2$

**3. Nov/2022/Paper\_12/No.23**

R is a solid. R fizzes when hydrochloric acid is added.

R reacts with hot aqueous sodium hydroxide, giving off a gas which turns red litmus blue.

What is the formula of R?

- A  $\text{NH}_4\text{CO}_3$       B  $(\text{NH}_4)_2\text{CO}_3$       C  $(\text{NH}_4)_2\text{HCO}_3$       D  $(\text{NH}_4)_2\text{SO}_4$

**4. Nov/2022/Paper\_12/No.24**

Photochemical smog is a type of air pollution produced in urban areas by the effect of sunlight on substances released from vehicle exhausts.

Which mixture of primary pollutants leads to the formation of photochemical smog?

- A carbon dioxide and water vapour
- B carbon monoxide and unburnt hydrocarbons
- C nitrogen oxide and unburnt hydrocarbons
- D sulfur dioxide and water vapour