

Only one option is correct :

1. PH_3 (Phosphine) when passed in aqueous solution of CuSO_4 it produce -

- (A) Blue precipitate of $\text{Cu}(\text{OH})_2$.
- (B) dark blue solution of $[\text{Cu}(\text{PH}_3)_4]\text{SO}_4$
- (C) Black precipitate of Cu_3P_2
- (D) Colorless solution of $[\text{Cu}(\text{H}_2\text{O})_4]^+$

SBG STUDY

2. $\text{H}_3\text{PO}_2 \xrightarrow{\Delta} (\text{X}) + \text{PH}_3$; is

- (A) Dehydration reaction
- (B) Oxidation reaction
- (C) Disproportionation reaction
- (D) Dephosphorelation reaction

3. Which of the following species is not a pseudohalide?

- (A) CNO^-
- (B) RCOO^-
- (C) OCN^-
- (D) N_3^-

4. An orange solid (X) on heating, gives a colourless gas (Y) and a only green residuc (Z). Gas (Y) on treatment with Mg, produces a white solid substance

- (A) Mg_3N_2
- (B) MgO
- (C) Mg_2O_3
- (D) MgCl_2

5. Conc. HNO_3 is yellow coloured liquid due to

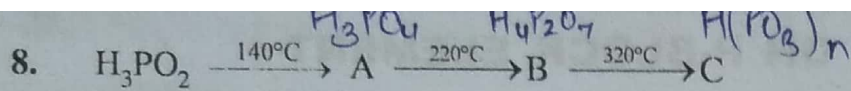
- (A) dissolution of NO in conc. HNO_3
- (B) dissolution of NO_2 in conc. HNO_3
- (C) dissolution of N_2O in conc. HNO_3
- (D) dissolution of N_2O_3 in conc. HNO_3

6. A gas at low temperature does not react with the most of compounds. It is almost inert and is used to create inert atmosphere in bulbs. The combustion of this gas is exceptionally an endothermic reaction. Based on the given information, we can conclude that the gas is

- (A) oxygen
- (B) nitrogen
- (C) carbon mono-oxide
- (D) hydrogen

7. When chlorine gas is passed through an aqueous solution of a potassium halide in the presence of chloroform, a violet colouration is obtained. On passing more of chlorine water, the violet colour is disappeared and solution becomes colourless. This test confirms the presence of in aqueous solution.

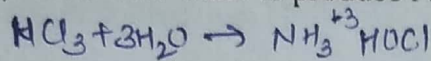
- (A) chlorine
- (B) fluorine
- (C) bromine
- (D) iodine



Compound (C) is

- (A) H_2PO_3 (B) H_3PO_3 (C) $(\text{HPO}_3)_n$ (D) $\text{H}_4\text{P}_2\text{O}_7$

9. An explosive compound (A) reacts with water to produce NH_4OH and HOCl . Then, the compound (A), is

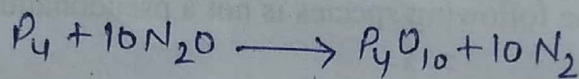


- (A) TNG (B) NCl_3 (C) PCl_3 (D) HNO_3

10. An inorganic compound (A) made of two most occurring elements into the earth crust, having a polymeric tetrahedral network structure. With carbon, compound (A) produces a poisonous gas (B) which is the most stable diatomic molecule. Compounds (A) and (B) will be

- (A) $\text{SiO}_2, \text{CO}_2$ (B) SiO_2, CO (C) SiC, CO (D) SiO_2, N_2

11. A sulphate of a metal (A) on heating evolves two gases (B) and (C) and an oxide (D). Gas (B) turns $\text{K}_2\text{Cr}_2\text{O}_7$ paper green while gas (C) forms a trimer in which there is no S-S bond. Compound (D) with HCl , forms a Lewis acid (E) which exists as a dimer. Compounds (A), (B), (C), (D) and (E) are respectively



- (A) $\text{FeSO}_4, \text{SO}_2, \text{SO}_3, \text{Fe}_2\text{O}_3, \text{FeCl}_3$
 (B) $\text{Al}_2(\text{SO}_4)_3, \text{SO}_2, \text{SO}_3, \text{Al}_2\text{O}_3, \text{FeCl}_3$
 (C) $\text{FeS}, \text{SO}_2, \text{SO}_3, \text{FeSO}_4, \text{FeCl}_3$
 (D) $\text{FeS}, \text{SO}_2, \text{SO}_3, \text{Fe}_2(\text{PO}_4)_3, \text{FeCl}_2$

12. A tetra-atomic molecule (A) on reaction with nitrogen(I)oxide, produces two substances (B) and (C). (B) is a dehydrating agent in its monomeric form while substance (C) is a diatomic gas which shows almost inert behaviour. The substances (A) and (B) and (C) respectively will be

- (A) $\text{P}_4, \text{P}_4\text{O}_{10}, \text{N}_2$ (B) $\text{P}_4, \text{N}_2\text{O}_5, \text{N}_2$ (C) $\text{P}_4, \text{P}_2\text{O}_3, \text{Ar}$ (D) $\text{P}_4, \text{P}_2\text{O}_3, \text{H}_2$

13. First compound of inert gases was prepared by scientist Neil Barthlete in 1962. This compound is

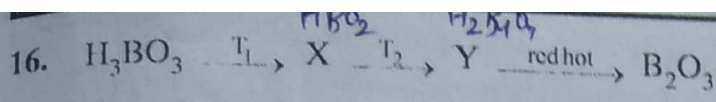
- (A) XePtF_6 (B) XeO_3 (C) XeF_6 (D) XeOF_4

14. Carbongene has X% of CO_2 and is used as an antidote for poisoning of Y. Then, X and Y are

- (A) X = 95% and Y = lead poisoning
 (B) X = 5% and Y = CO poisoning
 (C) X = 30% and Y = CO_2 poisoning
 (D) X = 45% and Y = CO poisoning

15. The correct order of acidic strength of oxides of nitrogen is

- (A) $\text{NO} < \text{NO}_2 < \text{N}_2\text{O} < \text{N}_2\text{O}_3 < \text{N}_2\text{O}_5$ (B) $\text{N}_2\text{O} < \text{NO} < \text{N}_2\text{O}_3 < \text{N}_2\text{O}_4 < \text{N}_2\text{O}_5$
 (C) $\text{NO} < \text{N}_2\text{O} < \text{N}_2\text{O}_3 < \text{N}_2\text{O}_5 < \text{N}_2\text{O}_4$ (D) $\text{NO} < \text{N}_2\text{O} < \text{N}_2\text{O}_5 < \text{N}_2\text{O}_3 < \text{N}_2\text{O}_4$



if $T_1 < T_2$ then X and Y respectively are

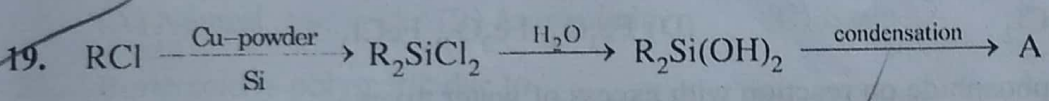
- (A) X = Metaboric acid and Y = Tetraboric acid
- (B) X = Tetraboric acid and Y = Metaboric acid
- (C) X = Borax and Y = Metaboric acid
- (D) X = Tetraboric acid and Y = Borax

17. When conc. H_2SO_4 was treated with $K_4[Fe(CN)_6]$, CO gas was evolved. By mistake, somebody used dilute H_2SO_4 instead of conc. H_2SO_4 then the gas evolved was

- (A) CO
- (B) HCN
- (C) N_2
- (D) CO_2

18. An inorganic white crystalline compound (A) has a rock salt structure. (A) on reaction with conc. H_2SO_4 and MnO_2 , evolves a pungent smelling, greenish-yellow gas (B). Compound (A) gives white ppt. of (C) with $AgNO_3$ solution. Compounds (A), (B) and (C) will be respectively

- (A) NaCl, Cl_2 , AgCl
- (B) NaBr, Br_2 , NaBr
- (C) NaCl, Cl_2 , Ag_2SO_4
- (D) Na_2CO_3 , CO_2 , Ag_2CO_3



Compound (A) is

- (A) a linear silicone
- (B) a chlorosilane
- (C) a linear silane
- (D) a network silane

20. When oxalic acid reacts with conc. H_2SO_4 , two gases produced are of neutral and acidic in nature respectively. Potassium hydroxide absorbs one of the two gases. The product formed during this absorption and the gas which gets absorbed are respectively

- (A) K_2CO_3 and CO_2
- (B) $KHCO_3$ and CO_2
- (C) K_2CO_3 and CO
- (D) $KHCO_3$ and CO

Handwritten notes: oxalic acid $H_2C_2O_4 \xrightarrow{H_2SO_4} CO + CO_2$
 $CO + CO_2$ absorbed by KOH and produces CO_3

21. Conc. H_2SO_4 cannot be used to prepare HBr from NaBr because it

- (A) reacts slowly with NaBr
- (B) oxidises HBr
- (C) reduces HBr
- (D) disproportionates HBr

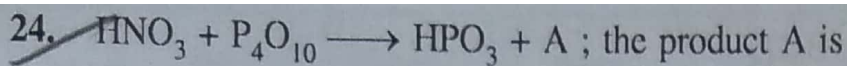
22. Ammonia can be dried by

- (A) conc. H_2SO_4
- (B) P_4O_{10}
- (C) CaO
- (D) anhydrous $CaCl_2$

23. When chlorine reacts with a gas X, an explosive inorganic compound Y is formed. Then X and Y will be

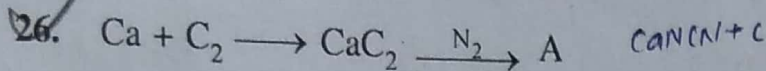
- (A) X = O_2 and Y = NCl_3
- (B) X = NH_3 and Y = NCl_3
- (C) X = O_2 and Y = NH_4Cl
- (D) X = NH_3 and Y = NH_4Cl





- (A) N_2O (B) N_2O_3 (C) NO_2 (D) N_2O_5

25. Which of the following is the correct order of acidic strength?



Compound (A) is used as a/an

- (A) fertilizer (B) dehydrating agent (C) oxidising agent (D) reducing agent

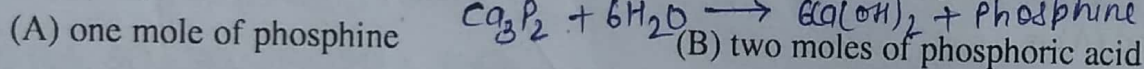
27. A gas which exists in three allotropic forms α , β and γ is

- (A) SO_2 (B) SO_3 (C) CO_2 (D) NH_3

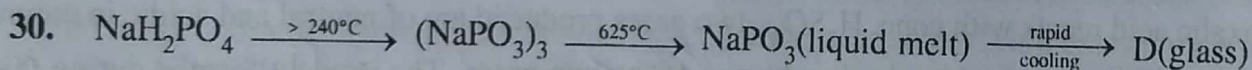
28. A red coloured mixed oxide (X) on treatment with conc. HNO_3 gives a compound (Y). (Y) with HCl produces a chloride compound (Z) which can also be produced by treating (X) with conc. HCl . Compounds (X), (Y), and (Z) will be



29. One mole of calcium phosphide on reaction with excess of water gives



- (B) two moles of phosphoric acid
(C) two moles of phosphine (D) one mole of phosphorus penta-oxide



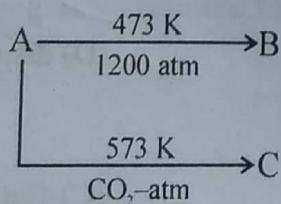
Sodium trimetaphosphate

$\text{Na}_3\text{P}_3\text{O}_7$

Compound (D) is known as

- (A) Microcosmic salt (B) Graham's salt (C) Reimann's salt (D) Switzer's Salt

31. Three allotropes (A), (B) and (C) of phosphorous in the following change are respectively



(A) white, β -black, red

(B) β -black, white, red

(C) red, β -black, white

(D) red, violet, β -black

32. When an inorganic compound reacts with SO_2 in aqueous medium, produces (A). (A) on reaction with Na_2CO_3 , gives compound (B) which with sulphur, gives a substance (C) used in photography. Compound (C) is
- $\text{Na}_2\text{CO}_3 + 2\text{SO}_2 + \text{H}_2\text{O} \longrightarrow 2\text{NaHSO}_3 + \text{Na}_2\text{CO}_3 \longrightarrow 2\text{Na}_2\text{S}_2\text{O}_3 + \text{H}_2\text{O} + \text{CO}_2$
- (A) Na_2S (B) $\text{Na}_2\text{S}_2\text{O}_7$ (C) Na_2SO_4 (D) $\text{Na}_2\text{S}_2\text{O}_3$
33. $\text{B(OH)}_3 + \text{NaOH} \rightleftharpoons \text{NaBO}_2 + \text{Na[B(OH)}_4] + \text{H}_2\text{O}$

How can this reaction is made to proceed in forward direction?

- (A) addition of cis 1,2 diol (B) addition of borax
 (C) addition of trans 1,2 diol (D) addition of Na_2HPO_4
34. Which is the compound responsible for the flickering light called will-o-the-wisp, some times seen in the Marsh.

- (A) PH_3 (B) P_2H_4 (C) H_2S (D) $\text{PH}_3 + \text{H}_2\text{S}$

35. The gun powder is consisting of '_____' + sulphur + Charcoal what is the missing substance for gun powder

- (A) LiNO_3 (B) NH_4NO_2 (C) KNO_3 (D) (A) and (B) mixture

36. An aqueous solution of borax is

- (A) Neutral (B) Amphoteric (C) Basic (D) Acidic

37. Boric acid is polymeric due to

- (A) Its acidic nature (B) The presence of hydrogen bonds
 (C) Its monobasic nature (D) Its geometry

38. The type of hybridisation of boron in diborane is

- (A) sp (B) sp^2 (C) sp^3 (D) dsp^2

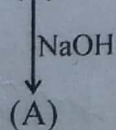
39. Thermodynamically the most stable form of carbon is

- (A) Diamond (B) Graphite (C) Fullerenes (D) Coal

40. Elements of group 14

- (A) Exhibit oxidation state of +4 only (B) Exhibit oxidation state of +2 and +4 only
 (C) Form M^{2-} and M^{4+} ions (D) Form M^{2+} and M^{4+} ions

41. $\text{A} + \text{Br}_2 \rightarrow \text{N}_2 + \text{(B)}$



if A is a basic gas then identified (A) and (B)

- (A) $\text{NH}_3, \text{NH}_4\text{Br}$ (B) $\text{NH}_3, \text{N}_2\text{O}$ (C) $\text{NH}_3, \text{N}_2\text{O}_5$ (D) None of these