

P-block elements group 16	
1	List some uses of sulphur.
2	The elements of 16 group have lower ionisation enthalpy values compared to those of Group 15 in the corresponding periods. Why?
3	Oxygen atom has less negative electron gain enthalpy than sulphur. WHY?
4	There is a large difference between the melting and boiling points of oxygen and sulphur. Why?
5	What are the common oxidation of oxygen?
6	H ₂ O is a liquid while H ₂ S is a gas. Why?
7	Their acidic character increases from H ₂ O to H ₂ Te. Justify
8	The thermal stability of hydrides also decreases from H ₂ O to H ₂ Po. Justify
9	SO ₂ is reducing while TeO ₂ is an oxidising agent. Justify
10	SF ₆ is exceptionally stable. Justify
11	H ₂ S is less acidic than H ₂ Te. Why?
12	Though combustion reactions are exothermic some heat energy is given initially. Why?
13	Give two examples of neutral oxides and amphoteric oxides.
14	Why is a silent electrical discharge used for ozone preparation?
15	Ozone is thermodynamically unstable with respect to oxygen. Justify
16	How is O ₃ estimated quantitatively?
17	What causes ozone layer depletion?
18	Why does O ₃ act as a powerful oxidising agent?
19	What are the allotropes of Sulphur?
20	How are rhombic sulphur and monoclinic sulphur formed?
21	Which form of sulphur shows paramagnetic behaviour ?
22	How does SO ₂ react with sodium hydroxide/ caustic soda?
23	How is sulphuryl chloride formed?
24	What happens when sulphur dioxide is passed through an aqueous solution of Fe(III) salt?
25	Comment on the nature of two S–O bonds formed in SO ₂ molecule. Are the two S–O bonds in this molecule equal ?
26	How is the presence of SO ₂ detected ?
27	Mention three areas in which H ₂ SO ₄ plays an important role.
28	Write the conditions to maximise the yield of H ₂ SO ₄ by Contact process.
29	Why is K _{a2} < K _{a1} for H ₂ SO ₄ in water ?
30	Concentrated sulphuric acid is a strong dehydrating agent. Justify with equation

31	Sulphuric acid, can be used to manufacture more volatile acids. Give equation
32	Complete the reactions: $\text{Cu} + 2 \text{H}_2\text{SO}_4(\text{conc.}) \rightarrow \text{S} + 2\text{H}_2\text{SO}_4(\text{conc.}) \rightarrow \text{C} + 2\text{H}_2\text{SO}_4(\text{conc.}) \rightarrow 2\text{Se}_2\text{Cl}_2 \rightarrow$
33	Justify the placement of O, S, Se, Te and Po in the same group of the periodic table in terms of electronic configuration, oxidation state and hydride formation
34	Why is dioxygen a gas but sulphur a solid ?
35	Knowing the electron gain enthalpy values for $\text{O} \rightarrow \text{O}^-$ and $\text{O} \rightarrow \text{O}^{2-}$ as -141 and 702 kJ mol^{-1} respectively, how can you account for the formation of a large number of oxides having O^{2-} species and not O^- ?
36	Which aerosols deplete ozone layer?
37	Describe the manufacture of H_2SO_4 by contact process?
38	How is SO_2 an air pollutant?
39	Hot conc. H_2SO_4 acts as a moderately strong oxidising agent. It oxidises both metals and nonmetals. Which of the following elements is oxidised by conc. H_2SO_4 into two gaseous products? (i) Cu (ii) S (iii) C (iv) Z
40	Which of the following statements are correct for SO_2 gas? (i) It acts as a bleaching agent in moist conditions. (ii) Its molecule has linear geometry. (iii) Its dilute solution is used as a disinfectant. (iv) It can be prepared by the reaction of dilute H_2SO_4 with metal sulphide
41	Which of the following statements are correct? (i) S-S bond is present in $\text{H}_2\text{S}_2\text{O}_6$. (ii) In peroxosulphuric acid (H_2SO_5) sulphur is in +6 oxidation state. (iii) Iron powder along with Al_2O_3 and K_2O is used as a catalyst in the preparation of NH_3 by Haber's process. (iv) Change in enthalpy is positive for the preparation of SO_3 by catalytic oxidation of SO_2
42	An amorphous solid "A" burns in air to form a gas "B" which turns lime water milky. The gas is also produced as a by-product during roasting of sulphide ore. This gas decolourises acidified aqueous KMnO_4 solution and reduces Fe^{3+} to Fe^{2+} . Identify the solid "A" and the gas "B" and write the reactions involved