



# CHEMISTRY

## BOOKS - ACCURATE PUBLICATION

### P-BLOCK ELEMENTS

#### Multiple Choice Questions

1. The group 15 elements are called :

A. Chalcogens

B. Halogens

C. Pnicogens

D. Noble gases

**Answer: C**



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2. The elements of group 15 are mostly:

A. Non-Metals

B. Metalloid

C. Metal

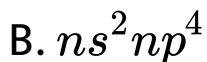
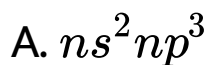
D. All of the above.

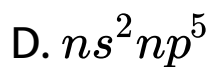
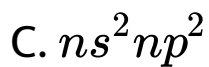
**Answer: D**



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3. The general electronic configuration of group 15 elements :





**Answer: A**



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**4. The elements of group 15 are mostly:**

A. +5

B. -3

C. -3, +5

D. None

**Answer: D**



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**5. Maximum covalency of Nitrogen is :**

A. 2

B. 4

C. 3

D. 5

**Answer: B**



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**6. The Allotropy character is not shown by :**

A. Bi

B. Sb

C. N

D. P

**Answer: A**



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7. For the elements of group 15 which is right:

- A. N and P are non Conductors
- B. As is poor conductor
- C. Sb and Bi are good conductors
- D. All the above.

**Answer: D**



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8.  $NF_3$  is an

A. endothermic compound

B. exothermic compound

C. both exothermic and endothermic compound.

D. none of the above.

**Answer: B**



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9. Phosphorus is stored in:

A. water

B. Air

C. Oil

D. None of these

**Answer: D**



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**10.** The value of ionisation energy of elements of N family is higher than elements of group 16 because of:



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**11.** Molecular Nitrogen ( $\text{N} \equiv \text{N}$ ) is very little reactive because it:

A. is highly electronegative

B. has very small atomic size and small bond length.

C. has lone pair of electrons

D. has no d-orbital

**Answer: B**



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**12.** Why does nitric oxide become brown when released in air?

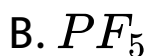
- A. it combines with  $O_2$  to form nitrogen dioxide ( $NO_2$ )
- B. it is paramagnetic
- C. it can dimerises
- D. it has odd electrons

**Answer: B**



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13. Which of the following fluorides does not exist:

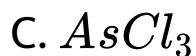


**Answer: A**



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14. Which of the following is most explosive :



D. All

**Answer: A**



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15. The order of basic strength of hydrides of the group -15 elements is

$NH_3 > PH_3 > AsH_3 > BiH_3$  this is due to



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16. Which of the following is paramagnetic

A.  $NO$

B.  $N_2O_4$

C.  $P_4O_6$

D.  $N_2O_5$

**Answer: C**



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**17.**  $P_4O_{10}$  (Phosphorous pentaoxide) is used as dehydrating agent as :

A. It has strong affinity for water

B. It can sublime on heating

C. It P can form double bond with oxygen



D. P has lone pair of electrons,

**Answer: A**



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**18.**  $PCl_5$  molecule is :

A.  $sp^3d$  hybridised

B.  $sp^3$  hybridised

C.  $sp^2$  hybridised

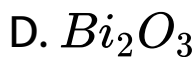
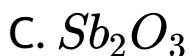
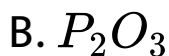
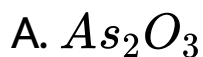
D.  $sp^3d^2$  hybridised

**Answer: A**



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**19.** Which of the following compounds is most acidic



**Answer: A**



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**20. What is formula of laughing gas :**



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**21. How many allotropes phosphorus have ?**

**A. 2**

**B. 3**

C. 4

D. 5

**Answer: C**



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**22. Which allotropic form of P is most reactive**

?

A. white phosphorus

B. red phosphorus

C. black phosphorus

D. blue Phosphorus

**Answer: A**



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**23.** Which allotropic form of P shows chemiluminescence ?

A. red P

B. white P

C. black P

D. blue P

**Answer: B**



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**24. P-P-P bond angle in white phosphorus is :**

A.  $120^\circ$

B.  $90^\circ$

C.  $109^\circ 28'$

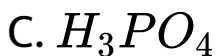
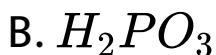
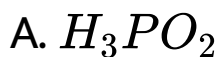
D.  $60^\circ$

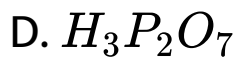
**Answer: D**



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**25.** The acid obtained when  $P_4O_6$  reacts with hot water



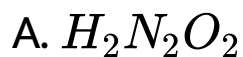


**Answer: B**



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**26.** The oxo acid of N having oxidation state + 5 is





D.  $HNO$

**Answer: B**



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**27.** The important oxides of N are

A. NO

B.  $N_2O_3$

C.  $NO_2$

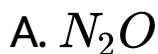
D. above all

**Answer: D**

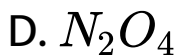
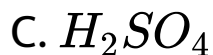


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**28. Which oxidant is used as liquid propellant:**



B. Nitro cellulose

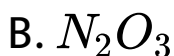
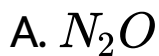


**Answer: D**



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29. Which oxide of nitrogen is produced by heating lead nitrate ?



**Answer: D**



30. Name the process for manufacture of nitric acid.

- A. Haber's process
- B. Ostwald process
- C. Solvay Process
- D. Contact Process

**Answer: B**



**31.** Which of the followings are known as Chalcogens ?

A. B, Al, Ga, In

B. N, P, As, Sb

C. F, Cl, Br, I

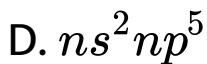
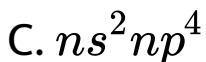
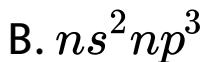
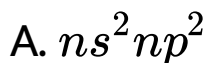
D. O, S, Se, Te

**Answer: D**



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32. Which one of the following outer electronic configuration represents elements of group 16?



**Answer: C**



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33. The decreasing tendency to exist in puckered 8-membered ring is

A.  $S > Se > Te > Po$

B.  $Se > S > Te > Po$

C.  $S > Te > Se > Po$

D.  $Te > Se > S > Po$

**Answer: A**



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34. Which of the following has the highest tendency towards catenation ?

A. Oxygen

B. Selenium

C. Sulphur

D. Tellurium

**Answer: C**



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**35.** Arrange following pairs, one which doesn't represent allotropes is

A. Oxygen, Ozone

B. Hydrogen, Deuterium

C. Red Phosphorus, Yellow Phosphorous

D. Diamond, Graphite

**Answer: B**



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36. Oxygen exhibits positive oxidation state in

A.  $CO$

B.  $F_2O$

C.  $NO$

D.  $N_2O$

**Answer: B**



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37. Which of the following element of group 16 is radioactive?

A. Oxygen

B. Selenium

C. Polonium

D. Tellurium

**Answer: C**



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**38.** How many elements are gases at room temperature ?

A. Small size, high electro negativity

B. Large size, high electro negativity

C. Small size, low electro negativity

D. None of the above

**Answer: A**



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39. The order of the atomic radii down the group in group 16 is

A.  $S > Se > Te > Po > O$

B.  $O > S > Se > Te > Po$

C.  $Po > Te > Se > S > O$

D.  $Te > S > Se > > Po$

**Answer: C**



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40.  $CaSO_4 \cdot 2H_2O$  is:

A. Epsom salt

B. Galena

C. Gypsum

D. Baryte

**Answer: C**



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41. Chemical reactivity of gp 16 elements decreases as

A.  $\text{Te} > \text{Se} > \text{S} > \text{O}$

B.  $\text{O} > \text{S} > \text{Se} > \text{Te}$

C.  $\text{O} < \text{S} < \text{Se} < \text{Te}$

D.  $\text{S} > \text{O} < \text{Se} < \text{Te}$

**Answer: B**



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42. Anomalous behaviour of oxygen is due to

A. small size

B. absence of vacant d-orbital

C. high electro negativity

D. all the above

**Answer: D**



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**43.** What are amphoteric oxides? give two examples of amphoteric oxides?

- A. The oxides which show acidic character
- B. The oxides which show both acidic and basic character
- C. The oxides which show basic character
- D. none of the above

**Answer: B**



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44. The oxo acid of Sulphur which contain a lonepair of electrons on sulphur is

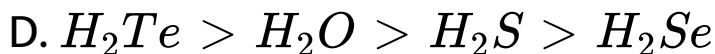
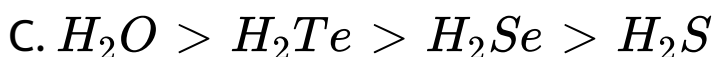
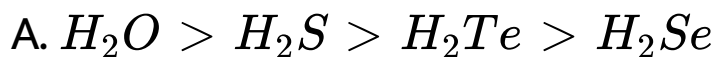
- A. Sulphurous acid
- B. Sulphuric acid
- C. Peroxodisulphuric acid
- D. pyrosulphuric acid

**Answer: A**



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45. The boiling point of hydrides of group 16 elements are in the order.

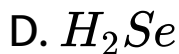
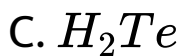


**Answer: C**



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46. Which of the following has lowest reducing character

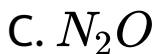
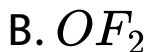
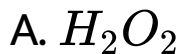


**Answer: A**



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47. Oxygen exhibit positive oxidation state in



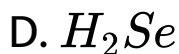
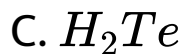
D. None of these

**Answer: B**



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48. Most volatile hydride of element of gp 16 is

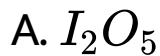


**Answer: B**



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49. Ozone oxidises moist iodine to



**Answer: C**



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50. The no of S - S bonds in sulphur trioxide trimer ( $S_3O_9$ ) is

A. three

B. two

C. one

D. zero

**Answer: D**



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51. Out of group 16 elements which molecule exist as diatomic molecule ?

A. Sulphur

B. Oxygen

C. Selenium

D. Tellurium

**Answer: B**



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52. What is the purpose of Catalyst  $MnO_2$  used in thermal decomposition of Potassium Chlorate  $KClO_3$  ?

A. It lowers the temperature for decomposition of  $KClO_3$

B. It increases the temperature for decomposition of  $KClO_3$

C. it provides more surface area

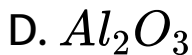
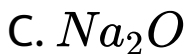
D. None of these

**Answer: A**



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**53.** Out of the following which is amphoteric oxide ?

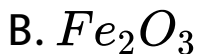
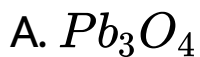


**Answer: C**



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**54.** Out of the following which one is mixed oxide ?



**Answer: A**



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**55.** Tailing of Mercury occurs due to formation of

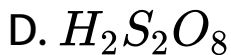
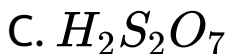
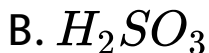
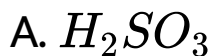
- A. Ozonides
- B. Mercurous Oxide
- C. Mercuric Oxide
- D. None of these

**Answer: B**



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56. Oleum is:  $H_2S_2O_7$ ,  $H_2S_2O_6$ ,  $H_4S_2O_7$ ,  
 $H_3S_2O_7$ .



**Answer: C**



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**57. Ozone gives brown colour with**

- A. Benzidine
- B. Lead acetate paper
- C. Starch Iodine Paper
- D. Tetramethyl base

**Answer: A**



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58. Which gas emitted from Supersonic jet aeroplanes dilute ozone layer ?

A.  $SO_2$

B.  $NO$

C.  $SO_3$

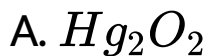
D. None

**Answer: B**





59. Mercury reacts with Ozone to give

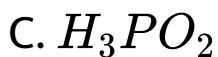
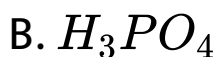
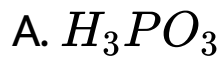


D. None

**Answer: C**



60. Ozone oxidizes moist Phosphorous to



D. None

**Answer: B**



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61. Sulphur molecule is : diatomic, tetratomic, triatomic, octatomic.

A. Diatomic

B. Tetra atomic

C. Tri atomic

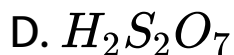
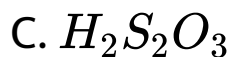
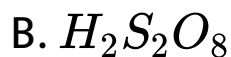
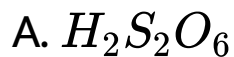
D. Octa atomic

**Answer: D**



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62. Which of the following has-O-O- linkage?



**Answer: B**



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63. The oxo acid of Sulphur which contain a lonepair of electrons on sulphur is

- A. Sulphurous Acid
- B. Sulphuric Acid
- C. Peroxydisulphuric acid
- D. Pyrosulphuric acid

**Answer: A**



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64. Bleaching action of  $SO_2$ , is due to :

A. Oxidation

B. Reduction

C. Acidic nature

D. Hydrolysis

**Answer: B**



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65. Name the gas can readily de-colourise acidified  $KMnO_4$  solution

A.  $CO_2$

B.  $NO_2$

C.  $P_2O_5$

D.  $SO_2$

**Answer: D**



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66. what happens when  $SO_2$  is passed through acidified  $K_2Cr_2O_7$  solution ?



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67.  $SO_2$  reacts with  $Cl_2$  in the presence of sunlight to form

A. Sulphuryl Chloride

B. Sulphonyl Chloride

C. Sulphur Dioxide

D. None of these.



**Answer: A**



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**68. What is Caro's Acid ?**

- A. Thiosulphuric Acid
- B. Dithonic acid
- C. Peroxydisulphuric acid
- D. Peroxymonosulphuric acid

**Answer: D**



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69. The transition temperature between Rhombic sulphur and monoclinic sulphur is

A. 963 K

B. 693 K

C. 369K

D. 1000 K

**Answer: C**



70. Fool's gold is known as

A.  $ZnS$

B.  $FeS_2$

C.  $Hg_2O$

D.  $Na_2SO_3$

**Answer: B**



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71. Which among the following is the most reactive ?



**Answer: D**



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72. Which halogen forms an oxy acid that contains the halogen atom in tripositive oxidation state?

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine

**Answer: B**



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**73.** Bromine vapours will turn moist starch iodide paper :

A. brown

B. red

C. blue

D. colour less

**Answer: C**



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74. Fill in the blanks- Any plant with leaves, flower, seeds used for flavouring, food, medicine or perfume is called as \_\_\_\_\_.



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75. Among the following which is the strongest oxidising agents:  $Br_2$ ,  $I_2$ ,  $F_2$ ,  $Cl_2$ .

A.  $I_2$

B.  $Cl_2$

C.  $Br_2$

D.  $F_2$

**Answer: D**



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**76.** Which of the following halide is strongest acid ?

A. HI

B. HBr



C. HCl

D. HF

**Answer: A**



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**77.** Which halogen is used for the formation of chloroform?

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine

**Answer: B**



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**78.** Which of the following has highest value of dipole moment ?

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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**79.** HCl at  $25^{\circ}C$  is :

A. Ionic and liquid

B. Covalent and liquid

C. Ionic and gas

D. None of the above

**Answer: D**



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**80.** The formula of glucose is  $C_6H_{12}O_6$  .

Calculate its molecular mass.



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**81.** Anomalous behavior of Fluorine is due to ?

- A. Small size
- B. Absence of d-orbital
- C. High electronegativity
- D. All of the above

**Answer: D**



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**82.** Which of the following halogens can form only -1 oxidation state ?

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine

**Answer: A**



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**83.** Fluorine has less negative electron gain enthalpy than chlorine due to:

A. Small size

B. High electro negativity

C. Absence of d-orbital

D. None of the above

**Answer: A**



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**84.** Fill in the blanks- A woody plant which is smaller than a tree and has several main

stems arising at or near the ground is called  
as \_\_\_\_\_.



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**85.** Arrange the different oxoacids of chlorine  
in increasing order of acidic strength?





**Answer: A**



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**86.** Fill in the blanks- \_\_\_\_\_ and \_\_\_\_\_ are the examples of trees.



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**87.** The geometry of  $IF_3$  is:

A. Trigonal bipyramidal

B. Sea-Saw

C. T-Shape

D. Trigonal planar

**Answer: A**



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**88.** Give the shape of  $IF_5$ .

A. Square planar

B. Square bipyramidal

C. T-Shape

D. Linear

**Answer: B**



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**89.** Why ICl is more reactive than  $I_2$  ?

A. High difference in electro negativity

B. Weaker ICl bond

C. Both (a) and (b)

D. None of the above

**Answer: C**



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90. \_\_\_\_\_ is a green coloured leaf like structure present in the flower. It protects the flower in bud form.



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**91.** Fill in the blanks- The plant with weak stem that cannot stand upright and spread on the ground is called \_\_\_\_\_.



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**92.** Which of the following Noble gases is radioactive:

A. Neon

B. Argon

C. Xenon

D. Radon

**Answer: D**



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**93.** Why elements of Group 18 are less reactive or inert?

A. Small size

B. R are Availability

C. Stable Electronic configuration

D. None

**Answer: C**



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**94.** Why electron gain enthalpies of noble gases are positive ?

A. Negative

B. Positive

C. Zero

D. Zero or Positive.

**Answer: D**



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**95.** Which of the following noble gases has highest boiling point :

A. He

B. Ne



C. Xe

D. Ar

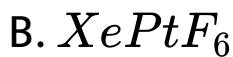
**Answer: C**



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**96.** Which reaction prompted N. Bartlett to prepare first noble gas compound? Which was the compound ?

A.  $XeO_3$



**Answer: B**



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**97.** The plants whose stems are very weak and that cannot stand upright and spread on the ground are called-

A. shrubs

B. creepers

C. herbs

D. trees

**Answer: A**



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**98.** Give hybridization and draw structure of  $XeF_4$ .

A. Tetrahedral

B. Square Planar

C. Square Pyramidal

D. Trigonal Bipyramidal

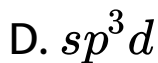
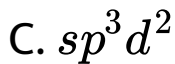
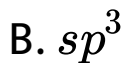
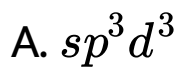
**Answer: B**



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**99.** Hybridisation of Xenon in  $XeF_6$  molecule

is :



**Answer: A**



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**100.** Which of the following noble gases form maximum compounds :

A. Neon

B. Argon

C. Radon

D. Xenon

**Answer: D**



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**P Block Group 16 Oxygen Family 1 Mark Questions**

1. Draw the structure of  $H_2S_2O_3$ .



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2. \_\_\_\_\_ is an example of herb.

A. Lemon

B. Rose

C. Mango

D. Basil

**Answer:**



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3. The process in which extra water comes out of the leaves in the form of water vapours is called\_\_\_\_\_.



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4. Name one oxoacid of S and draw its structure.





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5. Write the chemical equation when: Oxalic and reacts with concentrated  $H_2SO_4$ .



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6. Name the third element of the 16th group.  
Also write its atomic number.



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7. Exchange of gases in the plants is done through \_\_\_\_\_.



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8. Write the chemical equations when: Sugar reacts with conc.  $H_2SO_4$ .



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9. Draw the structure of  $H_2S_2O_3$ .





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10. Give the structure of  $SO_2$ .



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11. Write the reaction of  $SO_2$  with  $Cl_2$



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**12.** How will ozone oxidise the following : Lead sulphide to lead sulphate



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**13.** Arrange  $H_2O$ ,  $H_2S$ ,  $H_2Se$  and  $H_2Te$  in order of their boiling points ?



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14. Arrange  $H_2O$ ,  $H_2S$ ,  $H_2Se$  and  $H_2Te$  in order of their increasing acidic strength ?



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15. What is the chemical formula of chalcocite ?



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16. Which mineral of sulphur is known as fool's gold ?



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**P Block Group 17 Halogen Family 1 Mark Questions**

1. \_\_\_\_\_ is the part of the plant that helps to attract insects for pollination.



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2. What is the atomicity of the following :  
calcium oxide



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3. Write the formulas of water . Also name the elements presents in them.



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4. Name one oxoacid of Cl and draw its structure.



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5. Draw structure of  $IF_7$ .



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6. Why HF is a weak acid ?



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7. Name the second element of 17<sup>th</sup> group.

Also write atomic number?



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8. What are inter halogen compound ? Give preparation of ClF.



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9. Draw the structure of  $H_3PO_3$ .



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10. Draw the structure of following interhalogen compound.



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1. Draw the structure of  $XeOF_2$



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2. On the basis of hybridisation discuss the shape and geometry of  $XeO_3$ .



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3. Why noble gases are inert or inactive ?



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4. Draw the structure of  $\text{XeF}_2$  Write its hybridisation?



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5. Give hybridization and draw structure of  $\text{XeF}_4$ .



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6. Draw structure of  $XeF_6$



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7. Give the formula of the noble gas species which is isostructural with  $IBr_2^-$ .



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8. Which formula of noble gas species is isoelectronic with  $ICl_4^-$ ?



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9. Give the formula of the noble gas species which is isostructural with  $BrO_3^-$  .



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## P Block Group 16 Oxygen Family 2 Or 5 Mark Questions

1. Why does the oxygen show anomalous behaviour in its group ?



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2. Why conc.  $H_2SO_4$  is viscous and has high boiling point ?



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3. Why is dioxygen gas but sulphur a solid?



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4. Heating of milk and Drying of clothes is an example of \_\_\_\_\_ change.



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5. Why is  $H_2S$  less acidic than  $H_2Te$  ?



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6. Sulphur show +4 and +6 oxidation stae in their compounds but oxygen can not show



these oxidation states.



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7.  $H_2S$  is a gas while  $H_2O$  is liquid at room temperature? Why ?



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8. Why  $SF_6$  is known but  $SH_6$  is not known ?



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9. Explain that  $SO_2$  can act as an oxidising agent as well as a reducing agent, but  $SO_3$  can act as an oxidising agent only.



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10. How would you account for the following :  
Sulphur has a great tendency for catenation than oxygen.



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11. Oxygen gas is inert at room temperature why?



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12. Comment on nature of two S-O bond formed in  $SO_2$  molecule. Are the two S-O bonds in this molecule equal ?



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13. Why  $SF_6$  is known but  $OF_6$  is not known



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14. Elements of Group 16 generally show lower value of first ionisation enthalpy compared to the corresponding periods of group 15. Why?



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**15.** Oxygen gas is inert at room temperature why?



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**16.** Milk to cheese is an example of \_\_\_\_\_ change.



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**17.** What is the use of ozone layer?



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**18.** What is tailing of mercury ?



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**19.** Which form of sulphur shows paramagnetic behaviour and why ?



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**20.** Why conc. sulphuric acid is always diluted by adding sulphuric acid to water with constant stirring and not water to the acid ?



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**21.** Explain the reducing character of 16th group.



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**22.** What is the shape of ozone molecule ?



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**23.** Sulphur hexafluoride is used as a gaseous electrical insulator. Explain.



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**24.** Discuss the favourable conditions for the manufacture of sulphur trioxide from Sulphur



dioxide ?



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25. Oleum is:  $H_2S_2O_7$ ,  $H_2S_2O_6$ ,  $H_4S_2O_7$ ,  
 $H_3S_2O_7$ .



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26. Why does  $O_3$  act as a powerful oxidising agent ?



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**27.** Explain the manufacture of sulphuric acid by contact process.



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**28.** How will ozone oxidise the following :  
Potassium nitrite to potassium nitrate.



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**29.** Draw Flow Chart diagram of Contact Process.



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## **P Block Group 17 Halogen Family 2 Or 5 Mark Questions**

**1.** What are freons ?



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2. Why fluorine shows -1 oxidation state only whereas other halogens show variable oxidation states ?



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3. With what neutral molecule is  $ClO^-$  isoelectronic? Is that molecule a Lewis base?



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4. Account for the following: Among the halogens  $F_2$  is the strongest oxidising agent.



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5. Account for the following: Why the acid strengths of halogen acids increase in the order:  $HF < HCl < HI$ ?



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6. Why does fluorine show anomalous behaviour in its group ?



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7.  $SF_6$  is known but  $SCl_6$  is not known. Explain.



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8. Why are halogens coloured ?



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9. Why  $ClF_3$  exists, but  $FCl_3$  does not exist ?



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10. Why  $ICl$  is more reactive than  $I_2$  ?



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11. HF has higher boiling point than HCl.



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12. Draw the structure  $HCIO_4$ .



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13. Draw the structure of  $HCIO_3$ ?



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14. Draw the structure of  $HCIO_3$ ?





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**15.** Explain: Electron gain enthalpy of chlorine is more negative than fluorine.



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**16.** Explain the following :

Iodine is more soluble in KI solution than in water.



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**17.** What are pseudohalogens ? Give example.



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**18.** Give three examples of pseudohalide ions.



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**19.** Halogens have maximum negative electron gain enthalpy in the respective periods of the

periodic table. Why ?



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20. Write two uses of Chlorine.



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21. Explain why fluorine forms only one oxoacid, HOF.



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22. Write two uses of  $ClO_2$ .



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23. Fill in the blanks- The habitat of the plants and animals that live in water is called \_\_\_\_\_ habitat.



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24. Draw the structure of  $ICl_4^-$



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25. Arrange the different oxoacids of chlorine in increasing order of acidic strength?



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## P Block Elements Group 18 Noble Gases 2 Or 5 Mark Questions

1. Why do noble gases form compounds with fluorine and oxygen ?



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2. Discuss the structure of  $XeOF_4$



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3. Draw the structure of  $XeF_2$  Write its hybridisation?



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4. Draw the structure of  $NH_3$ .



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5. Draw the structure of  $XeF_6$  and what is the state of hybridisation of Xe in it ?



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6. Draw the structure of  $XeO_3$ . Write its state of hybridisation ?



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7. Give the structure of  $XeOF_2$  and state of hybridization of Xe in it.



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8. Draw the structure of  $XeO_2F_2$  with hybridisation ?



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9. Among noble gases, only Xe is known to form chemical compounds. Why ?



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10. Why do noble gases form compounds with fluorine and oxygen ?



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11. What inspired N. Bartlett for carrying out reaction between Xe and  $PtF_6$  ? Write the reaction also.



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12. Write two use of Helium.



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13. Write two use of Neon ?



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**14.** Write two use of Argon ?



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**15.** Write two uses of Krypton ?



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**16.** Write two uses of Radon?



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17. Noble gases have low boiling points.

Explain.



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