

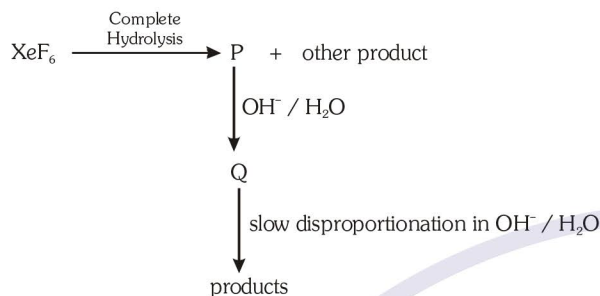
PREVIOUS YEARS' QUESTIONS

EXERCISE-II

1. Graphite is a soft solid lubricant extremely difficult to melt. The reason for this anomalous behaviour is that graphite : **[AIEEE-2003]**
 (1) Has molecules of variable molecular masses like polymers
 (2) Has carbon atoms arranged in large plates of rings of strongly bonded carbon atoms with weak interplate bonds
 (3) Is a non crystalline substance
 (4) Is an allotropic form of diamond
2. The soldiers of Napoleon army while at Alps during freezing winter suffered a serious problem as regards to the tin buttons of their uniforms. White Metallic tin buttons get converted to grey powder. This transformation is related to:- **[AIEEE-2004]**
 (1) An interaction with water vapour contained in humid air
 (2) A change in crystalline structure of tin
 (3) A change in the partial pressure of O_2 in air
 (4) An interaction with N_2 of air at low temperature
3. Which is the most thermodynamically stable allotropic form of phosphorus? **[IIT- 2004]**
 (1) Red (2) White (3) Black (4) Yellow
4. The number of hydrogen atoms attached to phosphorus atom in hypophosphorous acid is : **[AIEEE-2005]**
 (1) Zero (2) Two (3) One (4) Three
5. Which one of the following is the correct statement **[AIEEE-2005]**
 (1) Boric acid is a protonic acid
 (2) Beryllium exhibits coordination number of six
 (3) Chlorides of both beryllium and aluminium have bridged chloride structures in solid phase
 (4) B_2H_6 , $2NH_3$ is known as "inorganic benzene"
6. In silicon dioxide : **[AIEEE-2005]**
 (1) Each silicon atom is surrounded by four oxygen atoms and each oxygen atom is bonded to two silicon atoms
 (2) Each silicon atom is surrounded by two oxygen atoms and each oxygen atom is bonded to two silicon atoms
 (3) Silicon atom is bonded to two oxygen atoms
 (4) There are double bonds between silicon and oxygen atoms
7. Which of the following is not oxidised by O_3 ? **[IIT- 2005]**
 (1) KI (2) $FeSO_4$
 (3) $KMnO_4$ (4) K_2MnO_4
8. When PbO_2 reacts with conc. HNO_3 the gas evolved may be : **[IIT 2005]**
 (1) NO_2 (2) O_2 (3) N_2 (4) N_2O
9. The stability of dihalides of Si, Ge, Sn and Pb increases steadily in the sequence: **[AIEEE-2007]**
 (1) $GeX_2 \ll SiX_2 \ll SnX_2 \ll PbX_2$
 (2) $SiX_2 \ll GeX_2 \ll PbX_2 \ll SnX_2$
 (3) $SiX_2 \ll GeX_2 \ll SnX_2 \ll PbX_2$
 (4) $PbX_2 \ll SnX_2 \ll GeX_2 \ll SiX_2$
10. Among the following, the paramagnetic compound is – **[IIT- 2007]**
 (1) Na_2O_2 (2) O_3 (3) N_2O (4) KO_2
11. Among the following substituted silanes the one which will give rise to cross linked silicone polymer on hydrolysis is **[AIEEE-2008]**
 (1) R_4Si (2) $RSiCl_3$ (3) R_2SiCl_2 (4) R_3SiCl
12. Which of the following statements regarding sulphur is incorrect ? **[AIEEE-2011]**
 (1) At $600^\circ C$ the gas mainly consists of S_2 molecules
 (2) The oxidation state of sulphur is never less than +4 in its compounds
 (3) S_2 molecule is paramagnetic
 (4) The vapour at $200^\circ C$ consists mostly of S_8 rings
13. The number of S-S bonds in SO_3 , $S_2O_3^{2-}$, $S_2O_6^{2-}$ and $S_2O_8^{2-}$ respectively are :- **[JEE Main(Online)-2012]**
 (1) 1, 0, 1, 0 (2) 0, 1, 1, 0
 (3) 1, 0, 0, 1 (4) 0, 1, 0, 1
14. Which one of the following depletes ozone layer ? **[JEE Main(Online)-2012]**
 (1) NO and freons (2) SO_2
 (3) CO (4) CO_2
15. The formation of molecular complex $BF_3 - NH_3$ results in a change in hybridisation of boron :- **[JEE(Main) Online-2012]**
 (1) from sp^3 to sp^3d (2) from sp^2 to dsp^2
 (3) from sp^3 to sp^2 (4) from sp^2 to sp^3
16. Which of the following xenon-OXO compounds may not be obtained by hydrolysis of xenon fluorides ? **[JEE Main(Online)-2014]**
 (1) XeO_2F_2 (2) XeO_3 (3) XeO_4 (4) $XeOF_4$
17. Consider the reaction **[JEE Main(Online)-2014]**
 $H_2SO_{3(aq)} + Sn_{(aq)}^{4+} + H_2O_{(l)} \rightarrow Sn_{(aq)}^{2+} + HSO_{4(aq)}^- + 3H_{(aq)}^+$
 Which of the following statements is correct?
 (1) H_2SO_3 is the reducing agent because it undergoes oxidation
 (2) H_2SO_3 is the reducing agent because it undergoes reduction
 (3) Sn^{4+} is the reducing agent because it undergoes oxidation
 (4) Sn^{4+} is the oxidizing agent because it undergoes oxidation

18. Under ambient conditions, the total number of gases released as products in the final step of the reaction scheme shown below is

[JEE Adv. 2014]



- (1) 0 (2) 1 (3) 2 (4) 3
19. Which of the following compounds has a P-P bond:-

[JEE Main(Online)-2015]

- (1) $\text{H}_4\text{P}_2\text{O}_5$ (2) $(\text{HPO}_3)_3$
(3) $\text{H}_4\text{P}_2\text{O}_7$ (4) $\text{H}_4\text{P}_2\text{O}_6$

20. Which among the following is the most reactive ?

[JEE Main-2015]

- (1) I_2 (2) ICl (3) Cl_2 (4) Br_2

21. From the following statements regarding H_2O_2 , choose the incorrect statement :

[JEE Main-2015]

- (1) It has to be stored in plastic or wax lined glass bottles in dark
(2) It has to be kept away from dust
(3) It can act only as an oxidizing agent
(4) It decomposes on exposure to light

22. The reaction of zinc with dilute and concentrated nitric acid, respectively produces :

[JEE (Main) 2016]

- (1) NO_2 and N_2O (2) N_2O and NO_2
(3) NO_2 and NO (4) NO and N_2O

23. Which intermolecular force is most responsible in allowing xenon gas to liquefy?

[JEE (Main) Online 2016]

- (1) Ionic
(2) Instantaneous dipole- induced dipole
(3) Dipole - dipole
(4) Ion - dipole

24. The crystalline form of borax has

[JEE Adv. 2016]

- (1) Tetranuclear $[\text{B}_4\text{O}_5(\text{OH})_4]^{2-}$ unit
(2) All boron atoms in the same plane
(3) Equal number of sp^2 and sp^3 hybridized boron atoms
(4) One terminal hydroxide per boron atom

25. Which of the following reactions is an example of a redox reaction ?

[JEE (Main) 2017]

- (1) $\text{XeF}_4 + \text{O}_2\text{F}_2 \rightarrow \text{XeF}_6 + \text{O}_2$
(2) $\text{XeF}_2 + \text{PF}_5 \rightarrow [\text{XeF}]^+\text{PF}_6^-$
(3) $\text{XeF}_6 + \text{H}_2\text{O} \rightarrow \text{XeOF}_4 + 2\text{HF}$
(4) $\text{XeF}_6 + 2\text{H}_2\text{O} \rightarrow \text{XeO}_2\text{F}_2 + 4\text{HF}$

26. The products obtained when chlorine gas reacts with cold and dilute aqueous NaOH are :-

[JEE (Main) 2017]

- (1) ClO^- and ClO_3^- (2) ClO_2^- and ClO_3^-
(3) Cl^- and ClO^- (4) Cl^- and ClO_2^-

27. The order of the oxidation state of the phosphorus atom in H_3PO_2 , H_3PO_4 , H_3PO_3 and $\text{H}_4\text{P}_2\text{O}_6$ is

[JEE Adv. 2017]

- (1) $\text{H}_3\text{PO}_4 > \text{H}_4\text{P}_2\text{O}_6 > \text{H}_3\text{PO}_3 > \text{H}_3\text{PO}_2$
(2) $\text{H}_3\text{PO}_3 > \text{H}_3\text{PO}_2 > \text{H}_3\text{PO}_4 > \text{H}_4\text{P}_2\text{O}_6$
(3) $\text{H}_3\text{PO}_2 > \text{H}_3\text{PO}_3 > \text{H}_4\text{P}_2\text{O}_6 > \text{H}_3\text{PO}_4$
(4) $\text{H}_3\text{PO}_4 > \text{H}_3\text{PO}_2 > \text{H}_3\text{PO}_3 > \text{H}_4\text{P}_2\text{O}_6$

28. The option(s) with only amphoteric oxides is (are):

[JEE Adv. 2017]

- (1) Cr_2O_3 , CrO , SnO , PbO
(2) NO , B_2O_3 , PbO , SnO_2
(3) Cr_2O_3 , BeO , SnO , SnO_2
(4) ZnO , Al_2O_3 , PbO , PbO_2

29. The colour of the X_2 molecules of group 17 elements changes gradually from yellow to violet down the group. This is due to -

[JEE Adv. 2017]

- (1) the physical state of X_2 at room temperature changes from gas to solid down the group
(2) decrease in HOMO-LUMO gap down the group
(3) decrease in $\pi^*-\sigma^*$ down the group
(4) decrease in ionization energy down the group

30. Xenon hexafluoride on partial hydrolysis produces compounds 'X' and 'Y' Compounds 'X' and 'Y' and the oxidation state of Xe are respectively :

[JEE (Main) ONLINE 2018]

- (1) $\text{XeO}_2\text{F}_2(+6)$ and $\text{XeO}_2(+4)$
(2) $\text{XeOF}_4(+6)$ and $\text{XeO}_2\text{F}_2(+6)$
(3) $\text{XeOF}_4(+6)$ and $\text{XeO}_3(+6)$
(4) $\text{XeO}_2(+4)$ and $\text{XeO}_3(+6)$

PREVIOUS YEARS QUESTIONS				ANSWER KEY				Exercise-II			
Que.	1	2	3	4	5	6	7	8	9	10	
Ans.	2	2	3	2	3	1	3	2	3	4	
Que.	11	12	13	14	15	16	17	18	19	20	
Ans.	2	2	2	1	4	3	1	3	4	2	
Que.	21	22	23	24	25	26	27	28	29	30	
Ans.	3	2	2	1,3,4	1	3	1	3,4	2,3	2	