

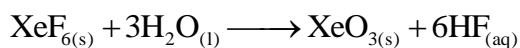
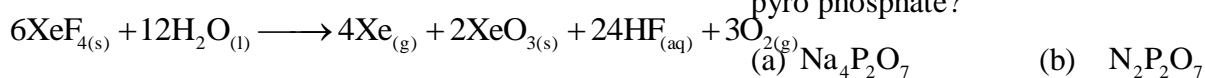
11-12 + JEE/GUJCET
CHEMISTRY
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GUJCET CRASH COURSE

SEM- 3 - Ch- 5 p Block (Answers)

(1) Which of the following is an explosive solid?

- (a) XeO_3 (b) XeO_4
 (c) XeO_6 (d) XeO_2F_2

Ans: (a)



(2) Which bond is most polar in the following?

- (a) $\text{Br}-\text{F}$ (b) $\text{F}-\text{F}$
 (c) $\text{Cl}-\text{F}$ (d) $\text{I}-\text{F}$

Ans: (d)

Iodine is present near to bottom in group-17. So its volume is more and possess less electronegativity while 'F' is the first element of this

group. So its volume is very less and it possess maximum electronegativity. So there is a large difference in electronegativity. So it is most polar.

(3) What is the formula of sodium pyro phosphate?

- (a) $\text{Na}_4\text{P}_2\text{O}_7$ (b) $\text{N}_2\text{P}_2\text{O}_7$
 (c) $\text{Na}_3\text{P}_4\text{O}_7$
 (d) Na_2PO_6

Ans: (a)

(4) Which of the following is a radio active element?

- (a) Ne (b) Ar
 (c) Kr (d) Rn

Ans: (d)

(5) XeOF_4 possesses which structure?

- (a) Trigonal Pyramidal

(b) Square pyramidal

(c) Square planar

(d) Pentagonal bipyramidal

Ans: (b)

(6) How many groups are there in p-block element?

(a) 3

(b) 4

(c) 5

(d) 6

Ans: (d)

In a modern periodic table, in group-13 to group-18 last electron is added in p-orbital, so all the elements of group-13 to group-18 are known as p-block elements whose general electron configuration is ns^2np^6 .

(7) What is the molecular formula of Chile saltpetre?

(a) KNO_3

(b) $NaNO_3$

(c) $Ca(NO_3)_2$

(d) $Ba(NO_3)_2$

Ans: (b)

In the earth crust nitrogen element is found in the minerals Chile saltpetre ($NaNO_3$) and potassium nitrate (KNO_3).

(8) For the presence of which of the following ions, ring test is useful?

(a) NO^-

(b) NO_3^-

(c) NO_2

(d)

N_2O

Ans: (b)

The aqueous solution of nitric acid (HNO_3) gives ring test. This ring test is given by aqueous solution having NO_3^- .

During qualitative analysis of inorganic compound in laboratory, to check presence of NO_3^- ion this ring test is used.

(9) Which of the following groups of four elements is called chalcogens?

(a) Nitrogen, phosphorus, arsenic and antimony

Group-16 contains oxygen, sulphur, selenium, tellurium and polonium elements. The group of first four elements are known as chalcogens.

(10) Which of the following electronic configurations is the general electronic configuration elements of group 16?

(a) ns^2np^3

(b) ns^2np^4

(c) ns^2np^6

(d) ns^2np^5

Ans: (b)

Group – 15 ns^2np^3

Group – 16 ns^2np^4

Group – 17 ns^2np^5

Group – 18 ns^2np^6

(11) Which of the following oxo acids of chlorine is most stable?

- (a) HClO_3 (b) HClO
(c) HClO_4
(d) HClO_2

Ans: (c)

As oxidation state of halogens increases, the reactivity of oxo acids also increases.

e.g. HClO is a very weak acid in which oxidation state of Cl is (+1). While HClO_4 is very strong acid in which oxidation state of Cl is (+7).

(12) Which of the following orders with reference to stability is correct?

- (a) $\text{HF} > \text{HBr} > \text{HCl} > \text{HI}$
(b) $\text{HI} < \text{HCl} < \text{HBr} < \text{HF}$
(c) $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$
(d) $\text{HF} > \text{HI} > \text{HCl} > \text{HBr}$

Ans: (c)

As we move down the group, the dissociation enthalpy of H - X bond increases with this the stability of Halide compounds decreases.

(13) Which of the following is the interhalogen compound?

- (a) XeF_4 (b) IF_7
(c) NaCl
(d) CaF_2

Ans: (b)

(14) What is the molecular formula of oleum?

- (a) H_2SO_3 (b) H_2SO_5
(c) $\text{H}_2\text{S}_2\text{O}_7$
(d) $\text{H}_2\text{S}_2\text{O}_8$

Ans: (c)

Sulphurous acid - H_2SO_3

Sulphuric acid - H_2SO_4

Para disulphuric acid - $\text{H}_2\text{S}_2\text{O}_8$

Pyro sulphuric acid (oleum) - $\text{H}_2\text{S}_2\text{O}_7$

(15) Which of the following oxides of nitrogen, the oxidation state of nitrogen element is (+4)?

- (a) N_2O_3 (b) N_2O_4
(c) N_2O_5
(d) N_2O

Ans: (b)

- (A) N_2O_3
(B) N_2O_4

$$2x + 3(0) = 0$$

$$2x + 4(0) = 0$$

$$2x + 3(-2) = 0$$

$$2x + 4(-2) = 0$$

$$2x + (-6) = 0$$

$$2x + (-8) = 0$$

$$2x = +6$$

$$2x = +8$$

$$x = +3$$

$$x = +4$$



$$2x + 5(0) = 0$$

$$2x + (0) = 0$$

$$2x + 5(-2) = 0$$

$$2x(-2) = 0$$

$$2x + (-10) = 0$$

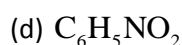
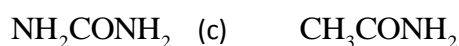
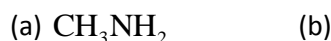
$$2x = +2$$

$$2x = +10$$

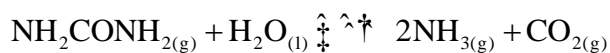
$$x = 1$$

$$x = +5$$

(16) By decay of which compound, ammonia is produced?



Ans: (b)



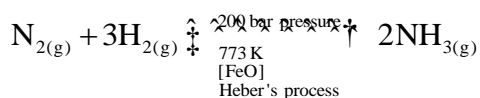
Urea

(17) By which method industrial production of ammonia is done?

(a) Contact process (b) Ostward method
(c) Haber's process (d)

Not given

Ans: (c)



(18) Which catalyst is used in Haber's process?

(a) FeO (b) Ni

(c) KCl (d) $LiAlH_4$

Ans: (a)

(19) Which promoter is used with FeO in Haber's process?

(a) K_2O

(b) Al_2O_3

(c) $NaNO_2$

(d) Both (a) and (b)

Ans: (d)

(20) Which of the following halogen element shows only one oxidation state?

(a) F (b) I

(c) Br

(d) Cl

Ans: (a)

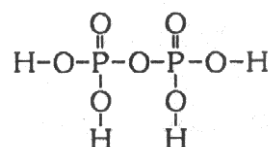
Due to maximum electronegativity it has (-1) oxidation state in its all compounds.

(21) How many hydroxyl group present in the pyrophosphoric acid?

(a) Two (b) Three

(c) Four (d) One

Ans: (c)



Pyro phosphoric acid
(Diphosphoric acid)

(22) Which type of hybridisation is observed in XeF_4 ?

- (a) sp^2 (b) d^2sp^3
 (c) sp
 (d) sp^3d^2

Ans: (d)

(23) In production of bleaching powder Cl_2 gas reacts with which of the following compound?

- (a) CaCO_3 (b) CaO
 (c) Ca(OH)_2
 (d) CaOCl

Ans: (c)

(24) Which of the following have a square planar structure?

- (a) XeO_2F_2 (b) X_3O_4
 (c) XeF_4
 (d) XeF_6

Ans: (c)

(25) Which of the following statement is correct?

- (a) H_3PO_3 is a monobasic and reducing agent
 (b) H_3PO_3 is dibasic and reducing agent
 (c) H_3PO_3 is a tribasic and reducing agent
 (d) H_3PO_3 is a tribasic and oxidising agent

Ans: (b)

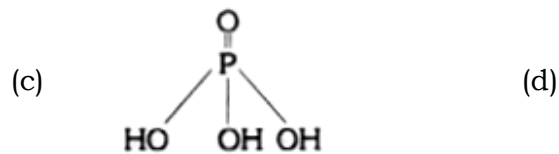
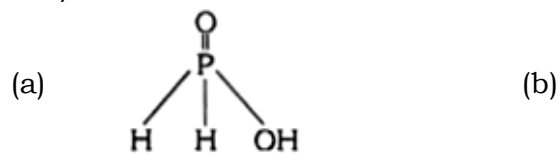
(26)is a reducing agent while.....is an oxidising agent.

- (a) $\text{SO}_2, \text{TeO}_2$ (b) $\text{TeO}_2, \text{SO}_2$
 (c) TeO, SO_3
 (d) SO_3, TeO

Ans: (a)

(27) Pick the correct structural formula of

hypo phosphorus acid (phosphonic acid).



Ans: (a)

(28) What is the oxidation state of 'Cl' in the following compounds? Cl_2O and ClO_2 .

- (a) -1, -2 (b) +1, +4
 (c) +1, +2
 (d) -1, -4

Ans: (b)

(29)

Part-A		Part-B	
(1)	Oxides of N & P	(a)	Basic
(2)	Oxides of As & Sb	(b)	Amphoteric
(3)	Oxides of Bi	(c)	Acidic
		(d)	Neutral

(a) (1-c), (2-b), (3-c)

(b) (1-b), (2-c), (3-d)

(c) (1-c), (2-d), (3-a)

(d) (1-d), (2-a), (3-b)

Ans: (a)

(30) Match-A and B.

Part-A		Part-B	
(1)	Chile salt petre	(a)	$\text{Ca}_9(\text{PO}_4)_6 \cdot \text{CaF}_2$
(2)	Indian salt petre	(b)	NaNO_3

(3)	Fluorapatite	(c)	KNO_3
		(d)	NH_4NO_3
		(e)	$\text{Ca}_9(\text{PO}_4)_6 \cdot \text{Ca}(\text{OH})_2$

(a) (1-c), (2-d), (3-e)
(b) (1-e), (2-b), (3-c)

(c) (1-b), (2-c), (3-a)
(d) (1-d), (2-e), (3-b)

Ans: (c)

(31) Match A and B:

Part-A		Part-B	
(1)	Smoke screen	(a)	Nitric acid
(2)	Rocket Fuel	(b)	Phosphine
(3)	Welding of metal	(c)	Ozone
		(d)	Dioxygen
		(e)	Sulphur dioxide

(a) (1-d), (2-c), (3-e)
(b) (1-b), (2-a), (3-d)

(c) (1-c), (2-e), (3-a)
(d) (1-e), (2-d), (3-c)

Ans: (b)

(32) A: PCl_3 produces fumes when it come in contact with air or water.
B: P-Cl bond decompose and produces phosphorous acid.

- (a) A and B both are correct and B is an explanation of A.
(b) A and B both are correct and B is not explanation of A.
(c) A is correct while B is wrong
(d) A is wrong while B is correct

Ans: (a)

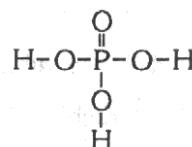
(33) Ortho phosphoric acid is a weak

triprotic acid because

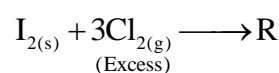
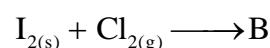
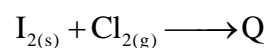
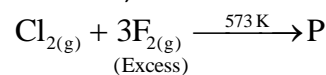
- (e) It's three H atoms is directly connected with phosphorous
(f) It's three H atoms is connected with Oxygen atom
(g) It has three oxygen atoms
(h) None of these

Ans: (b)

(Ortho phosphoric acid) (H_3PO_4)



(34) What is A, B and C?



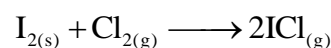
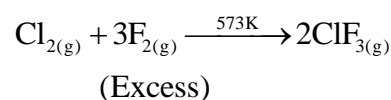
(a) P: 2ClF_3 , Q: 2ICl , R: 2ICl_3

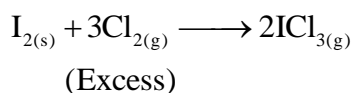
(b) P: 2ClF , Q: 2ICl_3 , R: 2ClF

(c) P: 2ClF_2 , Q: 2ICl , R: 2FCl

(d) P: ClF_3 , Q: ICl_2 , R: ICl_3

Ans: (a)





- (a) ns^2np^4 (b) ns^2np^3
 (c) ns^2np^5 (d) ns^2np^6

ns^2np^6

Ans: (b)

(35) From which of the following nitrogen is obtained?

- (a) Sodium nitrate (b) Potassium nitrate
 (c) Both (a) and (b) (d) Calcium nitrate

Ans: (c)

(36) Which element is obtained from apatite?

- (a) P (b) Ca
 (c) N (d) Bi

Ans: (a)

(37) What is the formula of Apatite mineral?

- (a) $\text{Ca}_9(\text{PO}_4)_6 \cdot \text{CaF}_2$
 (b) $\text{Ca}_9(\text{PO}_4)_6 \cdot \text{Ca}(\text{OH})_2$
 (c) $\text{Ca}_9(\text{PO}_4)_6 \cdot \text{CaCl}_2$
 (d) All of these

Ans: (d)

Formula of apatite mineral:
 $\text{Ca}_9(\text{PO}_4)_6 \cdot \text{Ca}(\text{OH})_2$

Where, (X = F, Cl, OH)

(38) What is present in eggs and milk?

- (a) Phospho protein (b) Phospholipids
 (c) Glycolipids (d) All of these

Ans: (a)

(39) What is the electronic configuration of elements of group-15?

(40) What is the formula of Bismuthine?

- (a) Bi_2S_3 (b) Bi_2O_3
 (c) $(\text{BiO})_2\text{CO}_3$ (d) Bi_2S_2

Ans: (a)

(41) Which of the following show the general oxidation state of Group-15 elements?

- (a) -3, +3, +5 (b) +2, +3, +4
 (c) -3, -4, +5 (d) -2, -3, -4

2, -3, -4

Ans: (a)

(42) What is the general formula of hydride of 15th group?

- (a) MmH_n (b) MH_3
 (c) MmH_{n-1} (d) MH_n

Ans: (b)

(43) Which is the correct order of basicity of the following?

- (a) $\text{NH}_3 > \text{PH}_3 > \text{AsH}_3 > \text{SbH}_3$
 (b) $\text{NH}_3 < \text{PH}_3 < \text{AsH}_3 < \text{SbH}_3$
 (c) $\text{PH}_3 > \text{NH}_3 > \text{AsH}_3 > \text{SbH}_3$
 (d) $\text{SbH}_3 > \text{AsH}_3 > \text{PH}_3 > \text{NH}_3$

Ans: (a)

(44) Industrially dinitrogen (N_2) gas is prepared by.....

- (a) Liquefaction of air

(b) Fractional distillation

(c) Both (a) and (b)(d) Electrolysis

Ans: (c)

(45) Which compound is used to prepare dinitrogen in laboratory?

- (a) NH_4Cl (b) NaNO_3
(c) Both (a) and (b)
(d) HNO_3

Ans: (a)

(46) How the extrapure dinitrogen can be obtained?

- (a) Thermal decomposition of sodium azide
(b) Thermal decomposition of barium azide
(c) Both (a) and (b)
(d) Thermal decomposition of potassium azide

Ans: (c)

(47) Which are the two stable isotopes of Nitrogen?

- (a) ^{14}N and ^{15}N
(b) ^{13}N and ^{17}N
(c) ^{12}N and ^{13}N
(d) ^7N and ^8N

Ans: (a)

(48) What is the product of reaction between N_2 and metals?

- (a) Covalent nitride
(b) Ionic nitride
(c) Co-ordinate nitride
(d) None

Ans: (b)

(49) What is the product of the reaction between N_2 and nonmetals?

- (a) Covalent nitride
(b) Ionic nitride
(c) Co-ordinate nitride

(d) None

Ans: (a)

(50) Which of following does not have allotropes?

- (a) P (b) N
(c) As
(d) Sb

Ans: (b)