BASIC INORGANIC NOMENCLATURE

Element :

General Rule : The names of metals generally end with-ium or-um (examples are sodium, potassium, aluminum and magnesium)

The exceptions are metals that were used and named in ancient times, such as iron, copper and gold

The names of nonmetals frequently end with-ine, -on, or –gen (such as iodine, argon, and oxygen.)

Given the names of the constituent elements and common ions, most of the common inorganic compound can be named using the rules presented below.

Acids :

Acids are normally classified in two groups, hydracids and oxyacids

Hydracids :

Hydracids are acids which contain hydrogen and a non-metal, but no oxygen.

General Rule : The names of hydracids have the prefix hydro-(sometimes shortened to hydr-) and the suffix-ic attached to the stem based on the names of the constituent elements (other than hydrogen)

For example, HCl (made of hydrogen and chlorine is hydrochloric acid; HBr (made of hydrogen and bromine) is hydrobromic acid, HI (made of hydrogen and iodine) is hydroiodic acid, HCN (made of hydrogen, carbon and nitrogen) is hydrocyanic acid; and H_2S (made of hydrogen and sulphur) is hydrosulphuric acid.

Cations (Positive ions)

Metal atoms with single positive charge

Rule : names of positive ions end with –ium if the ion has only one oxidation state (Only one level of net charge). For example, the positive ion of sodium is Na^+ (sodium ion), and the positive ion of aluminium is Al^{3+} (aluminium ion).

Metal atoms with more than one possible charges

Rule : If the cation has variable valency (charge), charge is specified in roman numerals in round brackets immediately after the name of metal atom. For example, Sn^{2+} is written as tin(II) ion.

Alternately, the less positive ion ends with ous, and the more positive ion ends with –ic, For instance, the two positive ions of copper are Cu^+(cuprous) and Cu^{2+} (cupric). The oxidation state of a positive ion can also be designated by placing a Roman numeral after the name of the elements. These positive ions of copper can also be written as copper(I) and copper(II), respectively.

Ions	Name
Cu^+	cuprous ion
Cu^{2+}	Cupric ion
Sn^{2+}	Stannous ion
Sn^{4+}	Stannic ion
Fe^{3+}	Ferric ion
Fe^{2+}	Ferrous ion

General rule

Suffix-nium is often used with cations containing non metals.

For example, the positive ion of ammonia is NH_4^+ (ammonium) and the positive ion of water (H_2O) is H_3O^+ or H^+ (hydronium).

Remember these names

NO_2^+ : nitronium

NO^+ : nitrosonium

H_3O^+ : hydronium

From NH_3 ammonia is derived NH_4^+ ammonium.

Simillarly.

N_2H_4 : hydrazine $\longrightarrow$ $N_2H_5^+$: hydrazinium

$C_6H_5NH_2$: aniline $\longrightarrow$ $C_6H_5NH_3^+$: anillinium

C_5H_5N : pyridine $\longrightarrow$ $C_5H_5NH^+$: pyridinium

Anions (Negative ions)

Anions can always be looked upon as ions derived from acids by removal of one or more protons. According, anions can be classified as follows :

Anions derived from hydracids

Rule : Names of negative ions from hydracids end in –ide.

For example , Cl^-(chloride) from HCl, and CN^-(cyanide) from HCN, following examples will give you a better insight in this nomenclature. It is also useful to remember them.

Remember these names

Anion	Name
H^-	Hydride ion
D^-	Deuteride ion
F^-	Fluoride ion
Cl^-	Chloride ion
Br^-	Bromide ion
I^-	Iodide ion
O^{2-}	Oxide ion
S^{2-}	Sulphide ion
Se^{2-}	Selenide ion
Te^{2-}	Telluride ion
N^{3-}	Nitride ion
P^{3-}	Phosphide ion
As^{3-}	Arsenide ion
Sb^{3-}	Antimonide ion
C^{4-}	Carbide ion
Si^{4-}	Silicide ion
B^{3-}	Boride ion

Oxoacids or Oxyacids

The acids which contain hydrogen, oxygen and a metal or non-metal.

In this case, more than one possibility aries due to the presence of different number of oxygen atoms. An example of such an oxoacid series is as follows : $HClO$, $HClO_2$, $HClO_3$, $HClO_4$ All these contains same three elements but differ in the number of oxygen atoms present.

General Rule-1 :

If a class of acids contains only one member, its name is given the suffix-ic.

For example hydrogen, carbon and oxygen combine to form only one acid i.e. H_2CO_3. It is called carbonic acid (carbonic acid)

General Rule-2 :

If an acid series contains two acids, such as H_2SO_4 and H_2SO_3, the acid containing more oxygen atoms is given the suffix-ic, while the acid with fewer oxygen atoms is given the suffix-ous.

For example H_2SO_4 is sulphuric acid, and H_2SO_3 is sulphurous acid.

Similarly, HNO_3 is nitric acid and HNO_2 is nitrous acid.

General Rule-3 :

The prefix ortho and meta have been used to distinguish acids differenting in the 'content of water'

(H_3BO_3)-Orthoboric acid – H_2O

$(HBO_2)_n$ – metaboric acid

General Rule-4 :

The prefix pyro has been used to designate an acid formed from two molecules of an ortho acid minus one molecule of water.

Ex. $H_4P_2O_7$-pyro phosphoric acid

General Rule -5 :

The prefix peroxo indicates the substitution
'–O–' by '–O–O–'
HNO_4 – peroxo nitric acid
H_3PO_5 – peroxo mono phosphoric acid

General Rule – 6 :

Acid derived by oxoacids by replacement of oxygen by sulphur are called thio acids.
$H_2S_2O_2$ – thio sulphurous acid
$H_2S_2O_3$ – thio sulphuric acid

Note : When more than one oxygen atom can be replaced by sulphur the number of sulphur atom should generally indicated
H_3PO_3S mono thio phosphoric acid
$H_3PO_2S_2$ Dithiophosphoric acid
In the case of an extensive acid series (such as HClO, $HClO_2$, $HClO_3$, $HClO_4$), the acid with the one oxygen atoms lesser than –ous acid is given the prefix hypo-and the suffix –ous, and the acid with the one oxygen atom more than the –ic acid is given the prefix per and a suffix –ic.
In the above example, HClO is hypochlorous acid $HClO_2$ is chlorous acid, $HClO_3$ is chloric acid, and $HClO_4$ is perchloric acid.

Anions derived from oxyacids (oxyanions)

(i) Anion derived from an oxyacid by removal of one or more H_+ ions is termed as oxyanion.
Rule : If the oxyacid is – ic acid, suffix – ate is used with oxy-anion.
For example

CO_3^{2-}	carbonate (from H_2CO_3)
ZnO_2^{2-}	Zincate
SiO_3^{2-}	Silicate

(ii) Rule : If the oxyacid is - ous acid, suffix-ite is used with oxy-anion.
For example, NO_2^- (nitrite) is derived from HNO_2 (nitrous acid), and SO_3^{2-} (sulphite) is derived from H_2SO_3 (sulphurous acid)
(iii) Rule : If the oxyacid has prefixes per-or hypo–, the oxyanion will have same prefixes.
For example, ClO_4^- perchlorate ion from $HClO_4$, perchloric acid, ClO^- hypochlorite ion from HClO, hypochlorous acid
Remember these names

SO_4^{2-}	Sulphate
SO_3^{2-}	Sulphite
NO_3^-	Nitrate
NO_2^-	Nitrite
SnO_3^{2-}	Stannate
SnO_2^{2-}	Stannite
PbO_3^{2-}	Plumbate
PbO_2^{2-}	Plumbite

(iv) Anions containing replacable hydrogen ions Polyprotic acid. Any acid containing more than one replacable hydrogens is said tobe a polyprotic acid.
(v) Replacable hydrogens. H atoms which can be lost as H^+ in reactions with a base. H atoms connected to O atoms in oxyacids are all replacable. If all the replacable hydrogens are removed, we obtain the anions discussed in the sections above. However, in all the polyprotic acids it is always possible to remove less than the maximum number of replacable hydrogens.
e.g. H_3PO_4 is triprotic. We can remove one, two or three H^+ ions from it to generate $H_2PO_4^-$, HPO_4^{2-} and PO_4^{3-}.

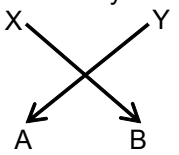
You are already familiar with phosphate ion, PO_4^{3-}. The other two anions, $H_2PO_4^-$ and HPO_4^{2-} still contain H atoms that are replacable. We consider their nomenclature in this section.

(vi) Rule-1 : A prefix bi- (old notation) or hydrogen – (IUPAC notation) is attached to the name of anion.
(vii) Rule-2 : For triprotic or higher acids, numerical prefixes (e.g. mono, bi, tri) are also used to indicate the number of replacable H atoms left in the sample).
eg. HCO_3^- is bicarbonate or hydrogen carbonateHSO_3^- bisulphite or hydrogen sulphite HS^- bisulphide or hydrogen sulphide etc. when anion has –3 charge, e.g. PO_4^{3-} then following possibilities arise. HPO_4^{2-} monohydrogen phosphate, $H_2PO_4^-$ dihydrogen phosphate.

Miscellaneous Anions (To be committed to memory)

Anion	Name
HO^-	Hydroxide ion
O_2^{2-}	Peroxide ion
O_2^-	Superoxide ion
S_2^{2-}	Disulphide ion
I_3^-	Triodide ion
N_3^-	Azide ion
NH^{2-}	Imide ion
NH_2^-	Amide ion
CN^-	Cyanide ion
C_2^{2-}	Acetylide ion
O_3^-	Ozonide ion
MnO_4^{2-}	Manganate ion
MnO_4^-	Permanganate ion
SCN^-	Thiocyanate ion
$S_2O_3^{2-}$	Thiosulphate ion
CH_3COO^-	Acetate ion
$C_2O_4^{2-}$	Oxalate ion

Th-8 Method of writing formula of an ionic compound

In order to write the formula of an ionic compound which is made up of two ions (simple or polyatomic) having net charges x and y respectively, follow the following procedure.
(i) Write the symbols of the ions side by side in such a way that positive ion is at the left and negative ion at the right as AB.
(ii) Write their charges on the top of each symbol as A_xB_y.
(iii) Now apply criss-cross rule as 

i.e. formula A_yB_x.
(iv) Cancel out any common factor (or HCF).

Examples :

1.	Calcium chloride	2 1 Ca Cl	$= CaCl_2$
2.	Aluminium oxide	3 2 Al O	$= Al_2O_3$
3.	Potassium Phosphate	1 3 K PO_4	$= K_3PO_4$

4.	Magnesium Oxide	2 3 Mg N	= Mg_3N_2
5.	Calcium Oxide	2 2 Ca O	= Ca_2O_2
6.	Ammonium Sulphate	1 2 NH_4 SO_4	= $(NH_4)_2SO_4$

Cancelling the common factor, answer is CaO

Some important points :

(i) If both element are non-metallic then more electronegative element is anionic part

As_2O_3 – arsenic (III) oxide

OF_2 – oxygen di flouride,

ICl_3 – Iodine trichloride

(ii) pyro name is attached with acid if it is derived by removing one water molecule from two acid molecules. Two acid molecules.

Two acid molecules $\xrightarrow{-H_2O}$ pyro acid

N, C, Cl, Br, not forms pyroxy acids

$2HClO_4 \xrightarrow{-H_2O} Cl_2O_7$ not oxiacid it is an oxide

(iii) **Meta acid**: If one water molecule is removing from one acid molecule then meta acid is obtained.

One acid molecule $\xrightarrow{-H_2O}$ meta acid

N, C, S, Cl, not forms metaoxy only Si, P, B forms metaoxy acids,

(iv) **Naming of oxoanions derived from oxyacids – ic** acid ☐ – ate – **us** acid ☐ – ite

(v) There are some more anions which are very common like :

CrO_4^{2-} – Chromate (name is derived from SO_4^{2-} sulphate as all features are same)

FeO_4^{2-} – ferrate

MoO_4^{2-} – molybolate

WO_4^{2-} – tungstate

MnO_4^{2-} – manganate

corresponding acids can be

H_2CrO_4 – chromic acid

H_2MnO_4 – manganic acid

Higher oxidation state of manganese ☐

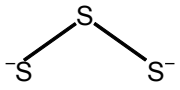
^{7}

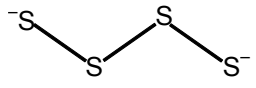
MnO_4^- Permanganate

$HMnO_4$ permanganic acid

(vi) **Polysulphides**

S_x^{2-} (x = 2, 3, 4, 5.....)

S_3^{2-}  trisulphide

S_4^{2-}  tetra sulphide

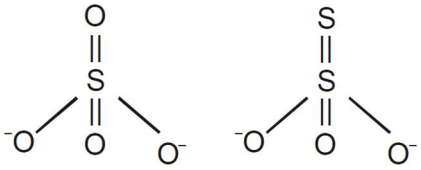
(vii) Sulphate & thiosulphate (hypo)

When ever oxygen of normal compound is replaced with sulphur then thio word is used before name of normal compound

alcohol –OH Thioalcohol –SH

ether –O– Thioether –S–

sulphate SO_4^{2-} Thiosulphate ($S_2O_3^{2-}$)



Cyanate ion & Thiocyanate ion

Cyanic acid (HOCN)

Cyanate ion $\Rightarrow$ $N\equiv C-O^-$

$^-N=C=O$

Resonating structure

Thio cyanate ion $\Rightarrow$ $N=C-S^-$

$^-N=C=S$

Resonating structure

(viii) Metal cations – Higher oxidation state of Cations ends with ic & lower by – us

Fe^{3+} – ferric Cu^{2+} – cupric

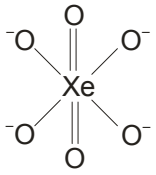
Fe^{2+} ferrous Cu_2^{2+} – cuprous

Hg^{2+} – mercuric Hg_2^{2+} – mercurous

(ix) Xenon :

H_4XeO_6 – perxenic acid

XeO_6^{4-} – perxenate ion



H_2XeO_4 – Xenic acid

XeO_4^{2-} – Perxenate ion

Table-1: Difference between Atoms and ions

	Atoms		Ions
1	Atoms are perfectly neutral	1	Ions are charged particles containing one or more atoms.
2	In atoms, the number of protons is equal to the number of electrons. Na (protons 11, electrons 11) ; Cl (protons 17, electrons 17)	2	In cations (positively charged ions), number of protons is more than the number of electrons. Inanions (negatively charged ions) the no. of protons is less than the number of electrons. e.g. Na^+ (protons 11, electrons 10). Cl^- (protons 17, electrons 18)
3	Except noble gases, atoms have less than 8 electrons in the outermost orbit e.g. Na : 2, 8, 1; Ca : 2, 8,8, 2; Cl : 2, 8, 7; S : 2, 8, 6	3	Ions have generally 8 electrons in the outermost orbit, i.e., ns^2np^6 configuration. Na^+ : 2, 8; Cl^- : 2, 8, 8; Ca^{2+} : 2, 8, 8
4	Chemical activity is due to loss or gain or sharing of electrons as to acquire noble gas configuration	4	The chemical activity is due to the charge on the ion. Oppositely charged ions are held together by electrostatic forces.

Table – 2 : Naming of Oxyacid							
Acid end with IC suffix		**Suffix –ous**		**Prefix –per ; suffix –ic**			**Prefix-pyro**
Formula	**Name**	**Formula**	**Name**	**Formula**	**Name**	**Formula**	**Name**
H_3BO_3	Orthoboric acid	HNO_2	Nitrous acid	HNO_4	Peroxynitric acid	$H_4P_2O_7$	Pyrophosphoric acid
H_2CO_3	Carbonic acid	H_2SO_3	Sulphurous acid	H_3PO_5	Peroxymonophosphoric acid	$H_4P_2O_5$	Pyrophosphrous acid
HONC	Isocyanic acid	$H_2S_2O_5$	Disulphurous acid	$H_4P_2O_5$	Peroxy diphosphric acid	$H_4B_2O_5$	Pyroboric acid
HOCN	Cyanic acid	$HClO_2$	Chlorous acid	H_2SO_5	Peroxymonosulphuric acid	$H_6Si_2O_7$	Pyro silicilic acid
HNO_3	Nitric acid	**Prefix-Hypo ; suffix-ic**		$H_2S_2O_8$	Peroxy disulphuric acid	$H_2S_2O_7$	Pyrosulphuric acid
H_2NO_2	Nitroxylic acid	$H_2N_2O_2$	Hyponitrous acid	$HClO_4$	Perchloric acid		
H_3PO_4	Orthophosphoric acid	HClO	Hypochlorous acid	**Prefix-thio**			
H_2SO_4	Sulphuric acid	Prefix – meta ; Suffix-ic		$H_2S_2O_3$	Thio sulphuric acid		
$HClO_3$	Chloric acid	$(HBO_2)_n$	Metaboric acid	$H_2S_2O_2$	Thio sulphurous acid		
$H_2S_2O_6$	Dithionic acid	$(HPO_3)_n$	Meta phosphoric acid	$H_2S_2O_6$	Dithionic acid		
				$H_2S_2O_4$	Dithionous acid		

Exercise-1

PART- I : SUBJECTIVE QUESTION

1. (a) Write the name of following cations
NO_2^+, NO^+, H_3O^+, NH_4^+, $N_2H_5^+$. $C_6H_5NH_3^+$, $C_5H_5NH^+$
(b) Write the name of following anions

F^-	Cl^-	Br^-	I^-	O^{2-}	S^{2-}	N^{3-}	P^{3-}	As^{3-}	Cu^-	H^-	Au^-
CO_3^{2-}	ZnO_2^{2-}	SiO_3^{2-}	NO_2^-	SO_3^{2-}	ClO_4^-	ClO^-	SO_4^{2-}	NO_3^-	SnO_3^{2-}	SnO_2^{2-}	PbO_3^{2-} PbO_2^{2-}

2. Write the names of the following compounds

(a) $Ca(HS)_2$	(b) $Ca(OCl)_2$	(c) CH_3COONa
(d) NaOCN	(e) $Ca(HCO_3)_2$	(f) $Mg(HSO_4)_2$
(g) Hg_2SO_4	(h) Cu_2S	(i) Fe_2O_3
(j) $NaIO_3$	(k) $(NH_4)_2SO_4$	(l) N_2H_5Cl
(m) C_5H_6NBr	(n) $C_6H_6NH_3^+NO_3^-$	(o) $Mg(NH_4)PO_4$
(p) $Hg_2P_2O_7$	(q) $CaZnO_2$	(r) NH_4HSO_4
(s) K_2Se	(t) $Na_2S_2O_3$	

3. Write the chemical formula of following compounds/ions

(1) Ferric sulphate	(2) Magnesium hydrogen phosphite	(3) Cadmium nitride
(4) Calcium borate	(5) Mercuric iodide	(6) Nickel bisulphate
(7) Arsenous oxide	(8) Lead formate	(9) Aluminium acetate
(10) Sodium dichromate	(11) Potassium cyanide	(12) Cuprous sulphide
(13) Metaphosphate ion	(14) Hydrogen peroxide	

PART- II : OBJECTIVE QUESTION

1. Dichromate ion is :
(A) CrO_4^{2-} (B) $Cr_2O_7^{2-}$ (C) CrO_3 (D) Cr_2O_4

2. Prefix per- is attached to the name
(A) H_2SnO_3 (B) Sb_2O_5 (C) H_3PO_5 (D) HNO_2

3. Match column-I with column-II and select correct

Column – I	**Column – II**
(I) CO_3^{2-}	(P) Carbonate ion
(II) N_3^-	(Q) Azide ion
(III) O_2^{2-}	(R) Acetate ion
(IV) CH_3COO^-	(S) Peroxide ion

	I	II	III	IV
(A)	P	Q	R	S
(B)	P	Q	S	R
(C)	R	S	Q	P
(D)	R	P	Q	S

4. Strontium metaphosphate is
(A) $Sr(PO_3)_2$ (B) $SrHPO_3$ (C) $Sr_3(PO_4)_2$ (D) $Sr_2P_2O_7$

5. Mercurous azide is
(A) $Hg_2(N_3)_2$ (B) HgN_3 (C) Hg_2N_3 (D) $Hg(N_3)_2$

6. Hydracid which contain nitrogen is
(A) HN_3 (B) HNO_3 (C) HNO_2 (D) NH_3

7. Correct name of the compound $NaCrO_2$ will be
(A) Sodium metachromate (B) Sodium metachromite
(C) Sodium orthochromate (D) Sodium Orthochromite

8. Correct name for $Na_2CaP_2O_7$ is
(A) Sodium calcium pyrophosphate (B) Sodium calcium metaphosphate
(C) Sodium calcium orthophosphate (D) None of these

9. Correct formula of aluminium perchlorate is :
(A) $Al(ClO)_3$ (B) $Al(ClO_2)_3$ (C) $Al_2(ClO_3)_3$ (D) $Al(ClO_4)_3$

10. Sodium chlorite is :
(A) $NaClO_3$ (B) $NaClO_2$ (C) NaClO (D) $NaClO_4$

11. Aluminium phosphide is :
(A) AlP_3 (B) Al_2P_3 (C) AlP (D) Al_3P_2

12. Formula of Dioxygen diflouride is :
(A) OF_2 (B) O_2F (C) O_2F_2 (D) O_2F_3

13. Barium azide is :
(A) BaN (B) Ba_2N_3 (C) $Ba(N_3)_2$ (D) Ba_3N_2

14. Silicon tetra flouride Formula is :
(A) SiF (B) SiF_3 (C) SiF_4 (D) SiF_6

15. Aluminium carbide is :
(A) Al_2C (B) Al_4C_3 (C) AlC_3 (D) AlC

16. Which of the following oxyacids forms pyroxyacids :
(A) H_3PO_4 (B) H_3BO_3 (C) H_2SO_4 (D) All of these

PART- III : MATCH THE COLUMN

1.

Column – I	Column-II
(A) Sulphurous acid	(p) $H_2S_2O_8$
(B) Per oxo disulphuric acid	(q) $H_2S_2O_7$
(C) Pyro sulphuric acid	(r) H_2SO_3
(D) Peroxo mono sulphuric acid	(s) Sulphur O.S + 6

2.

Column – I	Column-II
(A) HIO_2	(p) Magnesium hydrogen phosphite
(B) $Mg(IO)_2$	(q) Iodous Acid
(C) HIO	(r) Magnesium hypoiodite
(D) $MgHPO_3$	(s) Hypoiodous acid

Exercise-2

PART- I : OBJECTIVE QUESTION

1. In the given formulae which one is correct :
(A) SiI_2 (B) Cr_2O_7 (C) Ti_2O_5 (D) $Na_2C_8H_4O_4$

2. Nickel(II) pyroselenate is
(A) $Ni_2Se_2O_7$ (B) $NiSe_2O_7$ (C) $Ni_2Se_2O_5$ (D) $NiSe_2O_5$

3. The formula of sodium tungstate is Na_2WO_4 and that of lead phosphate is $Pb_3(PO_4)_2$. What is the formula for lead tungstate ?
(A) $PbWO_4$ (B) $Pb_2(WO_4)_3$ (C) $Pb_3(WO_4)_2$ (D) $Pb_3(WO_4)_4$

4. $Fe[Fe(CN)_6]$ is
(A) ferroferrocyanide (B) Ferriferricyanide (C) ferroferricyanide (D) ferriferrocyanide

5. Ethyl methyl ether, $CH_3–O–C_2H_5$, is used as an anaestheric. Formula for corresponding thioether would be
(A) $CH_3–S–C_2H_5$ (B) $CH_3–O–S–C_2H_5$ (C) $C_2H_5–O–CH_3$ (D) $C_2H_5–O–CH_2SH$

6. A pyro acid cannot be formed by
(A) $HClO_4$ (B) H_2SO_4 (C) H_3PO_4 (D) H_3BO_3

7. Correct formula for rubidium metagallate is
(A) $RbGaO_2$ (B) Ru_2GeO_2 (C) Rb_3GaO_3 (D) Ru_2GaO_3

8. Name of oxyanion of boric acid (H_3BO_3) is :
(A) Borate ion (B) Boraite ion (C) Hypo Borite ion (D) Per borate ion

9. Correct match is :
(i) CrO_4^{2-} = chromate (ii) MnO_4^{2-} = Mangnate (iii) BO_3^{3-} = Borate (iv) XeO_4^{2-} = Xenate
(A) Only (i) (ii) (B) Only (ii) (iii) (C) Only (iii) (iv) (D) All of these

10. Sodium tri-sulphide Formula is :
(A) Na_2S_3 (B) Na_3S (C) Na_3S_2 (D) Na_2S

11. PO_4^{3-} is :
(A) Phosphate ion (B) Phasphite ion (C) Hypophosphite ion (D) Pyrophosphite ion

12. Pyrophosphoric acid is :
(A) H_3PO_4 (B) $H_4P_2O_5$ (C) $H_4P_2O_7$ (D) H_3PO_3

13. Correctly match codes are :
(1) H_3PO_4 (p) Meta phosphoric acid
(2) HPO_3 (q) Thio sulphuric acid
(3) H_2SO_4 (r) Phosphoric acid
(4) $H_2S_2O_3$ (s) sulphuric acid
(A) $1 \rightarrow s, 2 \rightarrow q, 3 \rightarrow r, 4 \rightarrow s$ (B) $1 \rightarrow q, 2 \rightarrow r, 3 \rightarrow p, 4 \rightarrow q$
(C) $1 \rightarrow r, 2 \rightarrow p, 3 \rightarrow s, 4 \rightarrow q$ (D) $1 \rightarrow s, 2 \rightarrow r, 3 \rightarrow q, 4 \rightarrow p$

PART- II : ONE MORE THAN ONE CORRECT

14. Name of which of the following acids end in –ic acid ?
(A) H_2SO_4 (B) $HClO_4$ (C) H_2SO_3 (D) HNO_2

15. Names of which of the following end in –ous acid ?
(A) HNO_2 (B) H_2CO_3 (C) H_2SO_3 (D) HBO_2

16. Identify the meta-acids
(A) $HMnO_4$ (B) H_2SnO_3 (C) $HClO_3$ (D) HPO_3

17. Prefix pyro-is attached to the names
(A) As_2O_3 (B) $S_2O_7^{2-}$ (C) Sb_2O_5 (D) $H_4As_2O_7$

18. Which of the following compounds are oxide of chlorine ?
(A) ClO_2 (B) ClO_3 (C) Cl_2O_7 (D) Cl_2O_5

19. Which statement is/are incorrect ?
(A) Potassium Ozonide KO_3 (B) NaAu sodium curite
(C) NO_2^+ is nitrosonium (D) PbO_3^{2-} is plumbite

20. Which of the following statements is/are true for the acids [H_2CO_3, $H_2N_2O_2$, $HClO_2$, H_2SO_5]
(A) H_2CO_3 is acid of carbon and the correct name is carbonous acid.
(B) The correct name of $H_2N_2O_2$ is hyponitrous acid
(C) $HClO_2$ is perchloric acid of chlorine
(D) Peroxo mono sulphuric acid is H_2SO_5

ANSWER KEY

EXERCISE – 1

PART- I

1. (a) NO_2^+ : Nitronium, NO^+ : nitrosonium, H_3O^+ : hydronium, NH_4^+ : ammonium
$N_2H_5^+$: hydrazinium $C_6H_5NH_3^+$: anilinium $C_6H_5NH^+$: pyridinium

(b)

F^-	fluoride	Cl^-	chloride	Br^-	bromide
I^-	iodine	O^{2-}	oxide	S^{2-}	sulphide
N^{3-}	nitride	P^{3-}	phosphide	As^{3-}	arsenide
Cu^-	cupride	H^-	hydride	Au^-	auride
CO_3^{2-}	carbonate	ZnO_2^{2-}	zincate	SiO_3^{2-}	silicate
NO_2^-	nitrite	SO_3^{2-}	sulphite	ClO_4^-	perchlorate
ClO^-	hypochlorite	SO_4^{2-}	sulphate	NO_3^-	nitrate
SnO_3^{2-}	stannate	SnO_2^{2-}	stannite	PbO_3^{2-}	plumbate
PbO_2^{2-}	plumbite				

2. (a) Calcium bisulphide or hydrogen sulphide
(b) Calcium hypochlorite
(c) Sodium acetate
(d) Sodium cyanate
(e) Calcium bicarbonate
(f) Magnesium bisulphate or hydrogen sulphate
(g) Mercurous sulphate or Mercury (I) sulphate
(h) Cuprous sulphide or copper (I) sulphide
(i) Ferric oxide or iron (III) oxide
(j) Sodium iodate
(k) Ammonium sulphate
(l) Hydrazinium chloride
(m) Pyridinium bromide
(n) Anillinium nitrate
(o) Magnesium ammonium (ortho) phosphate
(p) Mercuric pyrophosphate or mercury(II) pyrophosphate
(q) Calcium zincate
(r) Ammonium bisulphate or ammonium hydrogensulphate
(s) Potassium selenide
(t) Sodium thiosulphate

3.

(1) $Fe_2(SO_4)_3$	(2) $MgHPO_3$	(3) Cd_3N_2	(4) $Ca_3(BO_3)_2$
(5) HgI_2	(6) $Ni(HSO_4)_2$	(7) As_2O_3	(8) $Pb(HCOO)_2$
(9) $Al(CH_3COO)_3$	(10) $Na_2Cr_2O_7$	(11) KCN	(12) Cu_2S
(13) PO_3^-	(14) H_2O_2		

PART- II

1.	(B)	**2.**	(C)	**3.**	(B)	**4.**	(A)	**5.**	(A)	**6.**	(A)	**7.**	(B)
8.	(A)	**9.**	(D)	**10.**	(B)	**11.**	(C)	**12.**	(C)	**13.**	(C)	**14.**	(C)
15.	(B)	**16.**	(D)										

PART- III

1. A→r, B→ps, C→qs, D→s **2.** A→q, B→r, C→s, D→p

EXERCISE – 2

PART- I

1.	(D)	**2.**	(B)	**3.**	(A)	**4.**	(B)	**5.**	(A)	**6.**	(A)	**7.**	(A)
8.	(A)	**9.**	(D)	**10.**	(A)	**11.**	(A)	**12.**	(C)	**13.**	(C)		

PART- II

14.	(AB)	**15.**	(AC)	**16.**	(BD)	**17.**	(BD)	**18.**	(ABCD)
19.	(BCD)	**20.**	(BD)						