CHEMISTRY

CLASS – X

CHAPTER – 2

vEy] {kkjd ,oa yo.k

ACID, BASE & SALT

iz'u 1- vEy fdls dgrs gSa

mÙkj& vEy og inkFkZ gS ftldk Lokn [kVVk gksrk gSA tks uhys fyVel dks ?kksy dk yky dj nsrk gSA tyh; foy;u esa gkbMªkstu vk;u (H^+) esDr djrk gS rFkk èkkrq ij vEy dh vfHkfØ;k ls gkbMªkstu xSl esDr gksrh gSA

tSls&**HCl, HNO_3, H_2SO_4** bR;kfn A

iz'u 2- {kkjd ;k HkLe fdls dgrs gSa

mÙkj& {kkjd og inkFkZ gS ftldk Lokn dMok gksrk gS] yky fyVel dk uhyk cukrk gSA bldk tyh; foy;u (OH^-) gkbMªkstu vk;u esDr djrk gSA rFkk vEy ls vfHkfØ;k dj yo.k cukrk gSA

tSls&**NaOH, CuO, CaO** rFkk **$Ca(OH)_2$** bR;kfnA

iz'u 3- yo.k dh ifjHkk"kk mnkgj.k }kjk nsA

mÙkj& o inkFkZ yo.k dgykrk gS tks fyVel i=k dks ifr mnklhu gksrk gSA èkkrq rFkk vEyksa ds chp vfHkfØ;k ds QyLo:i yo.k curk gSA

$$Zn + 2HCl \longrightarrow ZnCl_2 + H_2\uparrow$$

iz'u 4- vEy ds ikp xq.kksa dks fy[kAs

mÙkj& vEy ds ikp xq.k fuEufyf[kr gSa&

(i) vEy Lokn esa [kVVs gksrs gSA tSls&uhcw] lsjkA

(ii) ds N vEy fo"kSys gksrs gSA tSls&dkcksfyd vEy ¼fQuksy½

(iii) ds N vEy lsfkZd ,oa gkfudkjd gksrs gSA tSls&lY¶;fjd vEyA

(iv) ds N vEyksa ls vuqd iqdkj ds [kkn ,oa foLQksVd cuk;s tkrs gSA tSls &ukbfVªd vEyA

(v) ds N vEy LokLF; ij cjk iHkko Mkyrs gSA

iz'u 5- {kkj dk ikp x.kksa dk fy[kA

mÙkj& *{kkj dk x.k fuEufyf[kr gSa&%*

(i) *budk Lokn dMok gksrk gSA*

(ii) *;s lkcqu tSls fpduh gksrh gS rFkk Ropk dks gkfu igqapkrh gSA*

(iii) *;s yky fyVel dk uhyk dj nsrh gSA*

(iv) *;s gYnh ds jax dk Hkjk yky dj nsrh gSA*

(v) *;s vEyksa ds lkFk fØ;k djds yo.k rFkk ty cukrh gSA*

iz'u 6- {kkjksa ds mi;ksx crkvksA

mÙkj & *{kkjksa ds mi;ksx fuEufyf[kr gSa&%*

(i) *bldk mi;ksx lkcqu cukus esa fd;k tkrk gSA*

(ii) *bUgsa {kkjh; cVfj;ksa esa i;qDr fd;k tkrk gSA*

(iii) *budk mi;ksx ikVksy fjQkbfuax vkSj dkxt m|ksx esa i;qDr gksrk gSA*

(iv) *dBksj ty dks eqn cukus esa bldk mi;ksx fd;k tkrk gSA*

iz'u 7- vEy rFkk {kkj esa vUrj Li"V djsaA

mÙkj & *vEy rFkk {kkj esa fuEufyf[kr vUrj gSa&%*

vEy	*{kkj*
(i) *bldk Lokn [kVVk gksrk gSA*	**(i)** *bldk Lokn dMok gksrk gSA*
(ii) *;g uhyk fyVel i= dks yky dj nsrk gSA*	**(ii)** *;g yky fyVel i= dks uhyk dj nsrk gSA*
(iii) *;g ty esa foy; gksdj gkbMªkstu vk;u* **(H^+)** *nsrk gSA*	**(iii)** *;g ty esa foy; gksdj gkbMkbM dk;u* **(OH^-)** *nsrk gSA*
(iv) *;g {kkjd dk mnklhu dj nsrk gSA*	**(iv)** *;g vEy dk mnklhu dj nsrk gSA*
(v) *bldk* **pH** *eku 7 ls de gksrk gSA*	**(v)** *bldk* **pH** *eku 7 ls vf/kd gksrk gSA*

iz'u 8- vkjgfuy }kjk nh xbZ vEy rFkk HkLe dh ifjHkk"kk nsaA

mÙkj &vEy &vEy og inkFkZ gS tks ty esa ?kqydj gkbMªkstu vk;u **(H^+)** *inku djrk gSA*

*tSls &***HCl, H_2SO_4, HNO_3, CH_3COOH** *bR;kfnA*

$$HCl \xrightarrow{H_2O} H^+ + Cl^-$$

HkLe &HkLe og inkFkZ gS tks ty esa ?kqydj gkbMªkDlkbM **(OH^-)** *vk;u nsrk gSA*

tSls & **NaOH, KOH, NH_4OH, $Ca(OH)_2$** *bR;kfnA*

$$NaOH \xrightarrow{H_2O} Na^+ + OH^-$$

iz'u 9- vk;uhdj.k dh vkèkkj ij vEyksa dk foHkktu fdu oxksa esa fd;k tkrk gS\ o.kZu djsaA

mÙkj & vk;uhdj.k dh vkèkkj ij vEyksa dk foHkktu nks oxksa esa fd;k tkrk gS&

(i) izcy vEy (Strong Acid) – tks vEy ty esa ?kqydj yxHkx iw.kZr% vk;fur gksdj gkbMªkstu vk;u (H^+) iznku djrs gSaA tSls & gkbMªkDyksfjd vEy (HCl), ukbfVªd vEy (HNO_3), lYQ;qfjd vEy (H_2SO_4) bR;kfnA

(ii) nqcZy vEy (Weak Acid) – o vEy tks ty esa ?kqydj flQZ vkaf'kd :i ls vk;fur gksrs gSa] mUgsa nqcZy vEy dgrs gSaA tSls &dkcksZfud vEy (H_2CO_3), ,slhfVd vEy (CH_3COOH), nqcZy vEy gSA cksfjd vEy (H_3BO_3) Hkh ,d nqcZy vEy gS] ftldk mi;ksx ,VhlsfIVd d:i esa gksrk gSA

iz'u 10- foy;u esa mifLFkr vEy dh ek=k ds vuqlkj vEyksa dk foHkktu fdu oxksa esa fd;k tkrk gS\ o.kZu djsaA

mÙkj & fo;yu esa mifLFkr vEy dh ek=k ds vuqlkj vEyksa dk nks oxksa esa ckaVk x;k gS&

(i) lkæ vEy (Concentrated Acid) – tc foy;u esa vEy dh vfèkd ek=k mifLFkr jgrh gS rks mls lkæ vEy dgrs gSaA
lkæ vEy esa ty dh ek=k de jgrh gSA

(ii) ruq vEy (Dilute Acid) – tc foy;u esa vEy dh ek=k de jgrh gS rks mls ruq vEy dgrs gSaA
ruq vEy esa ty dh ek=k vfèkd jgrh gSA

iz'u 11- vEy rFkk {kkj ds vkjgfu;l fl)kUr dh lhekvksa dk mYys[k djsaA

mÙkj & vkjgfu;l fl)kUr ds nks"k fuEufyf[kr gSa &

(i) bl fl)kUr ds vuqlkj vEy **H** ;qDr ;kfxd gSa vkSj {kkj **OH** ;qDr ;kfxd gSaA yfdu dN ,sls {kkj gSa ftuesa **OH** ugha jgrkA bu vEyksa rFkk {kkjksa dh 0;k[;k bl fl)kUr ds vkèkkj ij ugha dh tk ldrhA

(ii) æo vekfu;k esa **NH_4NO_3** dk vkpj.k vEyh; gksrk gSA bldh 0;k[;k bl fl)kUr ds vkèkkj ij ugha dh tk ldrhA

(iii) tyh; foy;u esa **HCl** rks vEy ekuk tkrk gS fdUrq xSlh; voLFkk esa ;k vU; foyk;d ¼tSls&cSathu½ esa vEy ugha ekuk tkrkA

iz'u 12- vk;uhdj.k d vkèkkj ij HkLeksa dk fdruk Hkkxksa esa ckVk x;k gS \ o.kZu djsaA

mÙkj&vk;uhdj.k d vkèkkj ij HkLeksa dk nks oxksZa esa ckVk x;k gS&

(i) *izcy HkLe* **(Strong base)-** *o HkLe tks tyh; foy;u esa iw.kZr% vk;fur gksdj dkQh ek=k esa gkbMªkDlkbM vk;u* **(OH^-)** *mRiUu djrs gSaA mUgsa izcy Hk"e ;k izcy {kkj dgrs gSaA tSls&***NaOH, KOH** *izcy Hk"e gSaA*

(ii) *nqcZy HkLe* **(Weak base)**& *o HkLe tks tyh; foy;u esa flQZ vkaf'kd% vk;fur gksdj de ek=k esa gkbMªkDlkbM* **(OH^-)** *mRiUu djrs gSaA mUgsa nqcZy HkLe ;k nqcZy {kkj dgykrs gSaA tSls&vekfu;e gkbMªkDlkbM* (NH_4OH), *dSfY'k;e gkbMªkDlkbM* **$Ca(OH)_2$** *A*

iz'u 13- lwpd **(Indicator)** *fdls dgrs gSa \ ;s fdrus izdkj ds gksrs gSa \ ifjHkkf"kr djsaA*

mÙkj&lwpd ,sls inkFkZ gksrs gSa tks viuh jx ifjorZu d }kjk inkFkZ d vEyh; ;k {kkjh; ;k mnklhu gksus dh lwpuk nsrs gSaA

rhu lkekU; lwpd fyVel i=] feFkkby vkjsat rFkk QhukWYQFkfyu gSaA lwpd dk vEy {kkjd lwpd Hkh dgrs gSaA

;s nks izdkj d gksrs gSa&

(i) *ikÑfrd lwpd* & *ikÑfrd lwpd d vrxZr fyVel i= rFkk gYnh vkrs gSaA pqdUnj] yky xkHkh iÙkkA*

(ii) *l'ys"kr lwpd* & *bld vrxZr feFkkby vkjsat rFkk fQukWYQFkfyu gSaA*

*iz'u 14- xg fufeZr lwpd vki dSls cuk;saxs *

mÙkj &gYnh d NksVs&NksVs VqdM+s dks ty d lkFk xje dj Nku ysrs gSaA gYnh ls ikIr foy;u dks nks vyx&vyx ij[kufy;ksa esa ysrs gSaA ,d ij[kuyh esa lkcqu dk foy;u Mkyrs gSaA ij[kuyh d foy;u dk ihyk jax yky&Hkwjs jax esa cnyrk gS] ftls lkcqu d {kkjh; gksus dh igpku gksrh gSA nwljh ij[kuyh esa fljdk Mkyrs gSaA fljdk ij[kuyh esa j[k foy;u d jax esa dksbZ ifjorZu ugha djrkA vr% fljdk vEyh; gSA

*iz'u 15- vEyksa dh 'kfDr d ckjs esa vki D;k tkurs gSa \ fdu&fdu rjhdksa ls vEyksa dh 'kfDr dh rqyuk dh tk ldrh gS *

mÙkj & vEy d tyh; foy;u esa vEy }kjk ikIr gkbMªkstu vk;uksa dh ek=k ls mldh vEyh; 'kfDr dk fuèkkZj.k gksrk gSA

निम्न तरीकों से अम्लों की तुलना की जा सकती है–

(i) *vEy d lkr d vkèkkj* & *tSls&dkcZfud ;kfxd & ikèkkj ls ikIr vEy &lkbfVªd vEy] vkDtsfyd vEyA*

(ii) *vkf.od lajpuk d vkèkkj ij vEy & gkbMªk vEy &* **HCl, HBr, HI**

(iii) *icy vEy d vkèkkj ij & vEy tyh; foy;u e i.kr% vk;fur gkrk g ftld vk;uhdj.k dk v'k yxHkx 100%* **gkrk gA**

iz'u 16- yo.k fdl dgr g\ ;s fdru idkj d gkr g\ ifjHkkf"kr djA

mÙkj & yo.k o ;kfxd g ftudk fuekZ.k fdlh vEy dk fdlh {kkjd d vfHkfØ;k d QyLo:i gkrk g ,o ftle vEy v.k d ;kfxd e mifLFkr gkbMªkstu ijek.k fdlh èkkr }kjk foLFkkfir gkr gA

mnklhuhdj.k vfHkfØ;k e dkbZ vEy fdlh {kkjd d lkFk vfHkfØ;k dj yo.k ,o ty cukrk gA

tl &lkfM;e gkbMªkDlkbM ,o gkbMªkDyksfjd vEy d mnklhuhdj.k vfHkfØ;k e lkèkkj.k ued yo.k ,o ty cukr gA

NaOH + HCl ⟶ NaCl + H_2O

yo.k d idkj fuEufyf[kr g &%

(i) *lkekU; yo.k* **(Normal Salt)***&og yo.k ftlls vk;uZÑr* **H** *ijek.k ;k gkbMªkfDly leg ugh jgrk g] mls lkekU; yo.k dgr gA ;g vEy ,o HkkLe d i.k mnklhuhdj.k d QyLo:i curk gA tl&* **NaCl, HCl, $NaNO_3$, Na_2SO_4** *bR;kfnA*

(ii) *vEyh; yo.k* **(Acidic Salt)***&fdlh vEy d v.k e mifLFkr foLFkkiu ;kSfxd gkbMªkstu ijek.k dk èkkr }kjk v'kr% foLFkkfir dju d QyLo:i cu yo.k dk vEyh; yo.k dgr gA*

vFkok

o yo.k tks fdlh HkkLe }kjk fdlh vEy d vi.k mnklhuhdj.k d QyLo:i cur g] mls vEyh; yo.k dgr gA ble foLFkkiu ;kSfxd gkbMªkstu gkr gA tl& **$NaHSO_4$, $KHSO_4$,** *bR;kfn A*

(iii) *HkkLeh; yo.k* **(Basic Salt)***&o HkkLe ftud v.k e ,d ls vf/kd* **OH** *leg gkr gA vEyksa }kjk vkfxd :i ls mnklhu gkdj HkkfLed yo.k cukrk gA tl &* **$Pb(OH)NO_3$.** *ble foLFkkiu ;kSfxd gkbMªkDlkbM eyd gkr gA*

iz'u 17- **pH** *d vkèkkj ij yo.kksa dk oxhdj.k djA*

mÙkj &vEy vkj HkkLe dh iÑfr ;k **pH** *vkèkkfjr yo.kksa d foLFkkiu rhu rjg d gkr g&%*

(i) *mnklhu yo.k foy;u* **(Natural Salt Solution)***&icy vEy ,o icy HkkLe d yo.k foy;u mnklhu gkr gA budk* **pH** *eku* **7** *gkrk gA ;s*