

fyVel dkjæ ifjorŹi ughdjra tŹs NaCl, KCl, NaNO₃, Na₂SO₄ br kŹn A

(ii) **vEylŹ yo. kfo; yu (Acidic Salt Solution)** - izy vEylŹ, oanqŹ Hle dsyo. kfo; u vEylŹ gkrs gŹ bl dkpH eku 7 l sde gkrg gŹ ; s fyVel dkyhy jæ ulykeai fjoŹrŹ djrs gŹ tŹs NH₄Cl, (NH₄)₂SO₄ A

(iii) **HleŹ yo. kfo; u (Basic Salt Solution)** - izy Hle, oanqŹ vEylŹ dsyo. kfo; u {kjlŹ gkrs gŹ budk pH eku 7 l s vfekd gkrg gŹ tŹs- Na₂CO₃, K₃PO₄ br kŹn A

izu 18- yo. k ds l kŹŹ xqkæ dks fy/ kŹ

mŹkj & yo. k ds xqk fuEufyf/kr gŹ%

(i) izy vEylŹ rFlk izy Hle l scusyo. kædk t yŹ foy; u mnkl hu gkrg gŹ rFlk foy; u dkpH eku 7 gkrg gŹ tŹs KCl, NaCl, KNO₃ br kŹn A

(ii) izy vEylŹ rFlk nqŹ Hle l scusyo. kædk t yŹ foy; u vEylŹ gkrg gŹ tŹs- NH₄Cl, FeCl₃, FeSO₄ br kŹn A

(iii) nqŹ vEylŹ rFlk izy Hle l scusyo. kædk t yŹ foy; u {kjlŹ gkrg gŹ rFlk foy; u dkpH eku 7 l s vfekd gkrg gŹ tŹs- Na₂CO₃, NaHCO₃, CH₃COONa br kŹn A

izu 19- pH l dy D; k gŹŹ (SPL)

mŹkj & 1909 bŹ eal kŹŹ u usH⁺ vk; u dh l kærk dks Q Dr djus ds fy, pH fpæ dkm; læ fd; kæ bl eal l s 14 rd dh l æ; k; gkrs gŹ bl spH l dy dgk t krk gŹ



izu 20- pH eku D; k gŹŹ

mŹkj & xte v. kŹiŹr yŹŹj eal Dr gŹbMæ u vk; ula ds l kærk ds _ . kŹed y? læqkd dkpH eku dgk t krk gŹ

$$\text{pH} = -\log [\text{H}^+] = \log \left[\frac{1}{\text{H}^+} \right]$$

'kŹ t y dkpH eku 7 gkrg gŹ

izu 21- pH eku dk D; k egŹb gŹŹ

mŹkj & gekŹs nŹud t hu eal pH vr; Źr egŹb i vkŹLFku j/krk gŹ bl ds egŹb

fuEufyf[kr g&%

- (i) *ty dkpH eku Kkr djdsirk yxk; k t krk gSfd ty fdl dk; Zds fy, mi; Ør gA*
- (ii) *jDr dkpH eku Kkr djdsirk yxk; k t krk gSfd jDr 'k' gS; k v'k A*
- (iii) *feVWh dkpH eku Kkr djdsirk yxk; k t krk gSfd bl eadk&l h Ql y mxk; h t k l drh gA*
- (iv) *vud j l k fud vffHØ; k apH }kjk fu; f-r dh t krh gA t S & ty vi?kVu vffHØ; k fd.ou br; knA*
- (v) *ikpu ræ dspH dkirk yxkdj jksædh t kudkjh iDr dh t krh gA (1.0)*
- (vi) *nkrædspH eku eafjorZi ghusij nkr u"V ghus yxrs gA (5.5)*
- (vii) *ty dkpH , d fuf'pr l lek ds vñj jgusij jgusokyst ylr t ho t hfor jgrs gA*

izu 22- mnkl hukdj. k vffHØ; k l svki D; k l e>rs gA\ mnlgj. k }kjk l e>loa mñk & vEy rFlk {kjd ds vffHØ; k ds QyLo: i yo. krFlk ty curk gA ml s mnkl hukdj. k vffHØ; k dgrs gA



izu 23- usY i kls (cwY dh D; k fo'kkrk gS

mñk & usY, d'k/kr i klgSt kst xylæami t rk gA bl dsifuk; læaMduqk chy gkrsgA vxj xyrh l sNufy; k t k rksMal t S k nnZgkrk gA bu chylææFlakod vEy dk l ho ghus ds dkj. k nnZgkrk gA Mal ekjus ds LFku ij Mñk i kls dh i Ûh jxMusij bykt gk t krk gA; si kls vfeckdrj usY ds ikl ik stkrsgA Mñk i kls l sdñ HLe; k {kjk fudyrsgA t k vEy ds i hko dks mnkl hu dj nrs gA

izu 24- vPNs Ql y ds fy, feVWh dkpH eku 5.5 – 7.0 ghu k plfg, A fdl ku feVWh eapuk D; k feykrk gS

mñk & feVWh dkpH eku 5.5 – 7.0 ds chp jgusij Ql y vPNsgkrsgA feVWh ds vR; fêcl vEyl; ; k {kjk ghusij i kls dh of) ckêkr gk t krh gA feVWh ds vfecl vEyl; ghusij ml eadyh pukl Hkjkj puk; k dSY'k; e dkckZs Mlydj ml dkpH fu; f-r fd; k t krk gA bu jkl k fud inkFlæ ds HwLed ghus ds dkj. k; s feVWh ds vfrfjDr vEyl; rk dks de dj nrs

gā vr%fdl lu puk feykrk gā

izu 25- {kjk dsegbi wZjkl k fud xqk dks fy/ka

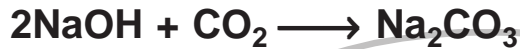
mūkj & {kjk dsegbi wZjkl k fud xqk fuēufyf/kr g&%

(i) *ēkrqhal sfθ; k* & {kjk dN ēkrqhal sfθ; k dj H₂ x\$ mRi lu djrsgā



1/4 kM; e ft ad 1/2

(ii) *ok q1 sfθ; k* & dN {kjk ok qeami fLFkr CO₂ 1 sfθ; k djrsgā



(iii) *vEykhal sfθ; k* & {kjk vEykhal sfθ; k dj dsyo. k r\$ kj djrsgā



(iv) *yo. hal sfθ; k* & rkch ylgj ft ad vln dsyo. k {kjk hal sfθ; k djrsgā
g\$ v\$ v?kyu 'khy ēkRd glbM kM r\$ kj djrsgā



izu 26- *gekjsn sud t hou ea vEyk d splj mi; lx crka*

mūkj & gekjsn sud t hou ea vEyk ds mi; lx fuēufyf/kr g&%

(i) fl jdk gekjsn sud t hou dks i dks v\$ ml dh 1 g {kjk rFk vlpkj cukusea
dke vkrk gā

(ii) gekjsi V ea HCl gkudkj d t lok k yladksu"V dj nrk gā t ksHkt u
ds1 kFk igp t krs gā

(iii) Vlj V\$jd vEyk c\$da ikmMj cukusea dke vkrk gā

(iv) dkcūd vEyk is inkFk ea iz qR glrk gā

izu 27- *vEyk dh gekjs t hou ea D; k gkfu; k gā*

mūkj & vEykhal sgkukyh gkfu; k fuēufyf/kr g&%

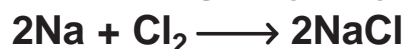
(i) ; s1 t ho dks" kdkv ladsu"V djrsgā

(ii) 1 kuz vEyk Ropk v\$ dkey vxlads xllj {kfr igp krs gā

(iii) dN [kk/ inkFk dks [kjc dj nrsgā

izu 28- 1 kM; e Dykj kM 1/4 kēkj. k ued 1/2 d\$ scuk kt krk g\$ bl ds nksēq;
jl k fud xqk rFk mi; lx crka

mūkj & xeZl kM; e ij Dykj hu x\$ inkgr djusi j 1 kM; e Dykj kM curk gā



jkl k fud xqk&%

(i) ; g , d vk fud ; kxd g\$ t ks vfr ?kyu 'khy gā

(ii) ;g , d 'or jolkj inkfzga

mi; lx &%

(i) Hkt u cukesa

(ii) gkbMt u DykjbM(HCl), cfdax i kmMj/ l kM; e clbZlkclzV/ l kM; e gkbMM lbM vkn dsfuekzk ea

izu 29- l kkkj. k ued dh i hr dgk&dgk gkrh gs\ Li "V dja

mkkj & l kkkj. k ued fuFufyf/kr l hr l si hr gkrk g&%

(i) l eph ty&l emzds [kkjsty dksM&MxM-kæea, d= dj l wZds izlk'keak'ir gksnrsga ok'u dschn Bkt ued dsjos i hr gkrsga

(ii) [kut ued ~~1/2~~ kuka; k pVvuka l s&vklVty; k ea ued [kuka l s fudkyk tkrkga bl dsfy, t ehu ds vanj, d i Ei ?k krs g\$ ft l ea rhu l alkh ukfy; k gkrh ga clgj okyh uyhl sxeZty vanj i osk dj k kt krg\$ ft l l sued dkfoy; u r\$ kj gkrkga l cl svanj okyh uyhl sgklj mPp nkc ij gok dk > l k vanj Ht kt krgga ued ds foy; u dksclp okyh uyhl sgklj clgj fudky nrkga foy; u dks Nkudj ok'ir djusij ued i hr gkrk ga

(iii) >lyl s& jkt LFku dh l kkkj >ly/ ve\$jd k dh xV l kV ysd/ : l dh ysd, YWu l sHh ued r\$ kj gkrk ga bl sty dsok' i hdj. k l s i hr fd; k t krgga

izu 30- l kkkj. k ued gok eaD; l i l lt us yxrk gs\

mkkj & l kkkj. k ued ea v' k ds: i ea exult' k e DykjbM jgrkga MgCl₂, d i zosh inkfzgst kuehl k krgga bl h dkj. k l kkkj. k ued [kyhgok ea j/ kusij i l lt us yxrk ga

izu 31- l kM; e gkbMM lbM(NaOH) d\$ scuk k t krgga bl ds mi; lx crk mkkj & l kM; e gkbMM lbM dks Dyk j, Ydyh fofek } kj k cuk k t krgga bl s dkLVd l kMk Hh dgrsga bl sfo/ q vi? kVu fofek } kj k cuk k t krgga

l kM; e DykjbM dst yhr foy; u eafo/ q ekjk i zkgr djusij ; g vi? kVr gklj l kM; e gkbMM lbM Dyk jhu rFk gkbMt u cukrk ga



mi; lx &%

(i) ekkyk ds xzt gVkusea

(ii) l kqm/ viekt Zl rFk dkxt dsfuekzk ea

(iii) Nf=e Qlbcj/ Nf=e oL=/ js'k vkn dsfuekzk ea

izu 32- I kM; e ckbZlkckZV ; k [kuskdk I kM dS scuk; k t krk gS\ bl dsnks
eq; jkl k; fud xqk rFlk mi; lx crk

mUkj & I kM; e ckbZlkckZV dks vekU; k I kM fofek ; k I kYos fofek } kjk cuk; k
t krk gA

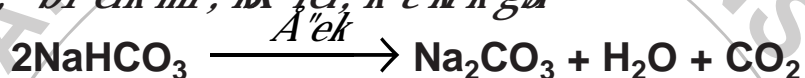
I kM; e dkckZV dst yH ?kY eaCO₂ xS izkfgr djusij I kM; e
ckbZlkckZV dk vo{ki iHr gkrk gA



jkl k; fud xqk &%

(i) ;g , d joknkj I Qn Bkl inktZgA

(ii) [kuk idkrsle; tc ;g xeZgkrk gS rks; g I kM; e dkckZV] ty
rFlk dkckZ MkbZ kM kM xS nsk gA vr% [kuk dks 'k?krk l sipkus
dsfy, bl dk mi; lx fd; k t krk gA



mi; lx &%

(i) bl dk mi; lx vfxu'ked ds: i eagkrk gA

(ii) bl dk mi; lx cfdax ikmMj ds fuelZk eaf; k t krk gA

izu 33- I kM; e dkckZV kuskdk I kM dS scuk; k t krk gS\ bl dsnks eq;
jkl k; fud xqk rFlk mi; lx crk

mUkj & bl dk jkl k; fud uke I kM; e dkckZV Mdk glbM gA ft I dk I #
Na₂CO₃ . 10H₂O gkrk gA

cfdax I kM dks xje djusij I kM; e dkckZV curk gA



iHr I kM; e dkckZV dst y lsfOLVyHr djus l sekkou I kM
iHr gkrk gA



jkl k; fud xqk &%

(i) ;g I Qn ikjn'kZ joknkj inktZgkrk gA

(ii) bl dks xje djusij ;g 10 v. kjok ty ds [knsrk gA vlf fut ZH
Na₂CO₃ cukrk gA



fut ZH Na₂CO₃ dks I kM {kY ; k I kM jk/k dgrs gA