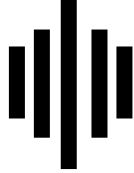




ଓଡ଼ିଶା ସରକାର, ଭୁବନେଶ୍ୱର

ଓଡ଼ିଶା ସରକାର



ଓଡ଼ିଶା ସରକାର

ଓଡ଼ିଶା ସରକାର

ଓଡ଼ିଶା ସରକାର

vkedk

jk"Vh; i kB; p; kZ dh : i js[kk 2005 eaftu fpUrkvka dk mYys[k fd; k x; k gSml dsrkjrE; eain'sk dsgkbZLdny , oagk; j l dsMjh eav/; ; u djusokysfo | kFFkz ka ds l aak eafopkj djus , oa mudh l eL; kvka dk l ek/kku djus graq NRRhl x<+ek/; fed f'k{kk e.My iz Ru'khy g\$ rkd 'k\$kf.kd y{; ka dh i kflr gks l ds , oa f'k{kk dh xqkoRrk ea l qkkj gks l da


ijh{kkvka ds l e; fo | kFFkz ka ds eu eafpUrK , oa Hk; mRiUu gsrk gSfd ijh{kk ds h gksch\ ijh{kk eafdl idkj izu i Ns tk; a\$ dks l k izu ijh{kk dsfy, egROIwKz gks l drsg\$ bl graq foxr o"kk\$ ea e.My iz kl jr jgk g\$ fo"K; okj ekMy izu i = dks vc NRRhl x<+ek/; fed f'k{kk e.My ds ekU; rk i klr fo | ky; ka ea Hkstus ds l kFk&l kFk mUga e.My ds os l kbV ea ykM fd; k tk; xkA ijh{kk ds Hk; , oaruko l seDr j [kus dsfy, e.My }kjk gkbZLdny , oagk; j l dsMjh ds fo | kFFkz ka ds fy, fo"K; okj d{kk 9oha l s 12ohard izu cid r\$ kj fd; k x; k g\$ izu cid ea ijEijxR izuka ds vrfjDr uohu izuka dk l eko\$K fd; k x; k g\$ izu cid bdkbdkj , oae.My dh ijh{kk ; kstuk ds vuq kj r\$ kj fd; k x; k g\$ ftl l s vPNs vad i klr djus ds l kFk&l kFk ijh{kkfFkz ka ea fo"K; ds ifr : fp mRiUu gkschA

izu cid ds vHkko eaf'k{kdk\$ i kf'udka vK\$ fo | kFFkz ka dks i kB; i qrd ds vUr eafn; s x, ijEijxR izuka ij fuHk\$ jguk i M\$K g\$ bl l sfo"K; dk eW; ka du 0; fDrijd (Subjective) gks tkrk g\$ rFk fofHkUu 'k\$kf.kd mI\$; ka ds vk/kkj ij eW; ka du ugha gsrk g\$ bl h vko'; drk dks /; ku ea j [krs gq e.My us gkbZLdny 1/9oh\$ 10oh\$ rFk gk; j l dsMjh 1/11oh\$ 12oh\$ ds l Hkh fo"K; ds izu cid dk fuekZk fd; k g\$ bl izu cid l s f'k{kdk\$, oa fo | kFFkz ka ea fur uohu izuka ds fuekZk dh vHk: fp mRiUu gkschA

izu cid ea fo"K; dh mi yC/k 'k\$kd l kexh dks 'kkfey fd; k x; k g\$ bl ea uohu ek\$yd izuka dK\$ fo"K; oLr\$ f'k{k.k dsmI\$;] dfBukbZLrj vK\$ vadu dh xqkoRrk ds vuq kj l q afBr djdsj [kk x; k g\$ izu cid ea e.My dh ijh{kk ; kstuk ds vuq kj vfry?kq\$Ukjh;] y?kq\$Ukjh; , oa nh?k\$Ukjh; izuka dk l eko\$K fd; k x; k g\$ ifr; ksch ijh{kk dsfy, vH; kl graqoLr\$u"B izuka dk Hkh l eko\$K izu cid eafd; k x; k g\$ ftl l s ifr; ksch ijh{kkvka ds vH; kl ea l gk; rk feyschA ifrfnu] ifr l l rkg] ifrekg vK\$ ifro"Kz uohu izuka ds ckjs ea fo | kFFkz k\$ f'k{kdk\$ i kf'udk\$ ijh{kdk\$ vK\$ l keU; tu l sfo"K; okj e.My uohu izuka dks vkef=r fd; k tkoskA vki ds }kjk i\$kr fo"K; okj uohu izuka dks tkM\$elj ifro"Kz izu cid dk l a kskku e.My }kjk fd; k tkosk] ftl l s izu cid vf/kd ifjiwKz vK\$ vk/k\$udre gks\$ jg\$

ep\$svk'kk gSfd e.My }kjk tkjh izu cid fo | kFFkz k\$ f'k{kdk\$ i kf'udka , oa ijh{kdk\$ dsfy, mi; ksch fl) gkschA

'k\$kdkeukvka l fgr---


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vkbz, -, l -

I fpo

N-x- ek/; fed f'k{kk e.My] jk; ij

& Ñf"k I eog &
fo"K; %& Ñf"K foKku ds rRo , oa xf.kr
bdkbZ & 01
i zdk'k , oa Å"ek xfrdh

vfr y?kq mÙkj; i zu

- izu 1& Nk; k dk cuuk i zdk'k ds dks I sxqk dk I R; ki u djrk gS\
- izu 2& i zdk'k D; k gS\ I e>kb; sA
- izu 3& I wLxg.k D; k i R; d vekoL; k dks gsrk gS\ vi us vflker nhft , A
- izu 4& xg.k i Muk i zdk'k ds dks I sxqk ds dkj.k gsrk gS\ I e>kb; sA
- izu 5& vko/kZ {kerk dh i fjHkk"kk fyf[k, A
- izu 6& plnz xg.k i R; d i wkZkl h dks ugha gsrk gS\ dkj.k Li "V fyf[k, A
- izu 7& i PNk; k vkj vi PNk; k eank varj fyf[k, A
- izu 8& yd dks i fjHkk"kr dj bl ds i zdkj fyf[k, A
- izu 9& vko/kZ {kerk I sD; k vk'k; gS\ I e>kb; sA
- izu 10& ; fn oLrqdk vkdkj i zdk'k L=kr ds vkdkj I sNks/k gsrks cuusokyh Nk; k dk j[kkfp= cukb; sA
- izu 11& ^okYo ds gVk yusij I kbdy ds V; I sfudyusokyh gok B.Mh gks tkrh gS* ; g dks I s Å"ek xfr dh i Øe dk mnkgj.k gS I e>kb; sA
- izu 12& Å"ek xfrdh i Øe dk vFkz fyf[k, A
- izu 13& batu dh n{krk fdruh gsrh gS\ I e>kb; sA
- izu 14& ; fn , d yd chp eaek/k rFkk fdukj sij i ryk gS rks; g fdl i zdkj dk yd gS bl ds mi ; kx fyf[k, A
- izu 15& I jy I fen'khz dh vko/kZ {kerk I hfer gkus ds dkj.k fyf[k, A

y?kq mÙkj; i zu

- izu 1& plnz xg.k dks fp= }kj k I e>kb; sA

izu 2& tc izk'k dh fdj.k fdl h pednkj l rg l sVdjkdj oki l ykS/ tkrh gSrks
bl ?kVuk dksD; k dgrsgā\ bl dsfu; e Hkh fyf[k, A

izu 3& izk'k ds iæqk xqk fyf[k, A

izu 4& l wZxg.k ds l æk eafuEu tkudkfj; kanhft, &

¼½ dkj.k ¼½ vko'; d 'krā ¼ ½ fp=

izu 5& iS/ky batu dh fo'kSkrrk, afyf[k, A

izu 6& iS/ky vkj Mhty batu ea iæqk varj fyf[k, A

izu 7& izk'k ds viorū l sD; k rkrī; Zgs\ bl dsfu; e fyf[k, A

nh?kz mÜkj; izu

izu 1& l jy l ũen'khz dh vko/kū {kerk dk 0; atd fl) dhft, A

izu 2& o.kz fo{ki .k ds l æk eafuEu tkudkfj; ka fyf[k, &

¼½ ifjHkk"kk] ¼½ jaks dk Øe o fp= ¼ ½ vkHkk l h rFkk okLfod LiS/e

izu 3& l a Ør l ũen'khz dk o.kū fuEu 'kh"kdka ea dhft, &

¼½ vko/kū {kerk dk l w ¼½ vko'; d fp=

¼ ½ vf/kd vko/kū {kerk gsrq vko'; drk, a

izu 4& yd ds l æk eafuEu tkudkfj; kanhft, &

¼½ eq; v{k] ¼½ eq; Okd l] ¼ ½ Okd l njh ¼½ izk'k dñz

izu 5& Å"ekxfrdh ds iFke fu; e ds dkbZ nks vuq; z kska dks l e>kb; sA

izu 6& Å"ek batu fdl s dgrsgā\ bl ds foHkkū Hkkxka dks fp= }kj k l e>kb; sA

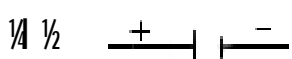
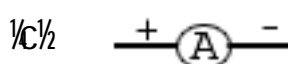
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fo | r , oafo | r ds mi dj .k

vfr y?kq mÙkj h; i zu

- izu 1& , fEi ; j fdl dk ek=d gS \ bl dh i fjHkk"kk Hkh fyf[k, A
- izu 2& dnykÙ D; k gS \ i fjHkkf"kr dhft, A
- izu 3& vke rFkk v'o 'kfDr dks l e>kb; sA
- izu 4& fo | r ghVj ea ifrjksk rkj l fi ykd kj dqMyh ds : i ea iz kx fd, tkus dk dkj .k fyf[k, A
- izu 5& fo | r bL=h dk fl) kUr , oacukoV fyf[k, A
- izu 6& fof" k"V i frjksk dks l e>kdj bl dsek=d fyf[k, A
- izu 7& fo | r cYc rFkk bL=h eafdl i zkj ds rUr q dk mi ; kx fd ; k tkrk gS vks D; ka \ Li "V fyf[k, A
- izu 8& y?kq Fku ¼ kkVl fd ½ dc gsrk gS \ dkj .k fyf[k, A
- izu 9& eksj LVkVj dk egRo fyf[k, A
- izu 10& fuEu l dsr fdl l sl af/kr gS &



y?kq mÙkj h; i zu

- izu 1& fo | r 'kfDr dks i fjHkkf"kr dj bl dsek=d fyf[k, A
- izu 2& i zdk' k fo | r l y ds mi ; kx fyf[k, A
- izu 3& fdl h pkyd dk i frjksk dks & dks l h ckrka i j fuHkj djrk gS \ l e>kb; sA
- izu 4& ?kjsyqfo | r fQfVx dk i fj i Fk cukb; sA
- izu 5& fo | r tfur nqkMuk l scpko ds i zdk mik; fyf[k, A
- izu 6& eksj LVkVj dh dk; fof/k fyf[k, A

nh?kz mÜkjh; izu

izu 1& izk'k fo|q l sy fdl izkj dh ; qDr gS\ ; g fdrus izkj dh gsrh gS\
izk'k pkydh; l sy dh jpuk , oadk; Zfof/k fyf[k, A

izu 2& vke dsfu; e dk o.ku fuEu fclnq/ka eadhft, &

¼½ ifjHkk"kk ¼½ vko'; d mi dj.k ¼ ½ fo|q ifji Fk

¼½ xtQ ¼½ nks l ko/kkfu; ka

izu 3& dnyke dk 0; qØe oxz dk fu; e fy[kdj bl dk 0; atd Kkr dhft, A

izu 4& nksfclnqvkošk tksØe'k%\$15 dnyke rFkk &5 dnyke dsgg gok ea8 l seh- dh
njh ij j [ksg&A budksfeykusokyh js[kk dse/; fclnqij os|q {ks= dh rhork
dk eku Kkr dhft, A

izu 5& , d edku ea20 okV ds5 l h, Q-, y- 10 ?k. Vs ifrfnu tyrsgg 80 okV dspkj
i qks rFkk 60 okV dk , d Vh-oh- ifrfnu 5 ?k. Vs pyrsgg rFkk 1000 okV dk
bezku jkMl dk eW; 3 : - ifr ; fuV gsrks, d ekg ea0; ; fo|q Åtkz Kkr
dhft, A

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dkcZud j l k; u] gkbMRD dkcZu] vk; rukRed fo'ySk.k

vfr y?kq mUkj h; iZu

- izu 1& dkcZud j l k; u dh i fjHkk"kk fyf[k, A
- izu 2& , fl fVYhu fdl iZkj dk dkcZud ; kSxd gS bl dk l j puk l # cukb; sA
- izu 3& C_nH_{2n+2} dks l h l tkrh; Jskh dk l keku; l # gSbl ds nks mnkgj.k fyf[k, A
- izu 4& , Fksyk rFkk eFksy fdl ; kSxd ds IUPAC dk uke gS\ budk l j puk l # fyf[k, A
- izu 5& vk; rukRed fo'ySk.k dh i fjHkk"kk fyf[k, A
- izu 6& ukeZyrk l sD; k rkr; ; ZgS\ l e>kb; sA
- izu 7& ekud foy; u cukusgrq i nkFkZ ds vko'; d Hkkj dh x.kuk dS sdh tkrh gS\ l e>kb; sA
- izu 8& ek'kZ xS D; k gS\ bl ds mi ; kx fyf[k, A
- izu 9& xkj xS l a # dk egRo fyf[k, A
- izu 10& tc , d hfVYhu xS dks jDr rlr /kkfRod uyh eaiZkfgd fd; k tkrk gS rks dks l h fO; k gsrh gS\
- izu 11& xkj xS dks & dks l h xS ka dk feJ.k gS\ l xBu nhft, A
- izu 12& l kSM; e , l hvV/ rFkk l kSM; e gkbMRD l kbM ds feJ.k dks xeZ djus ij fdl iZkj dh vfHkfO; k gsrh gS\
- izu 13& v.kq l # vkj emykuqkrh l # eaD; k l cZk gS\
- izu 14& , ydhu dk l keku; l # , oanks mnkgj.k fyf[k, A
- izu 15& $C_2H_5OH, CH_3CHO, CH_3COOH$ rFkk CH_3-O-CH_3 ; kSxdka ea fO; kRed l eg i gpkudj fyf[k, A

y?kq mUkj h; iZu

- izu 1& l eku fO; kRed l eg okys dkcZud ; kSxdka dh Jskh dks D; k dgrs gS\ bl Jskh dh fo'kSkrrk, a fyf[k, A

- izu 2& ,fyFkhu dk fuekZk fdl izdkj fd;k tkrk gS\ I e>kb; sA
- izu 3& iklyFkhu dk fuekZk fdl izdkj fd;k tkrk gS\ I e>kb; s
- izu 4& $\frac{N}{20}$ I kUnrk okys HCl foy; u dh I kUnrk xte ifr yhVj ea Kkr dhft, A
- izu 5& vEYefr rFkk {kkjefr vuqki u dks I e>kb; sA
- izu 6& fuEu dks ifjHkkf"kr dhft, &
- $\frac{1}{4}$ ekud foy; u] $\frac{1}{2}$ ukeYrk $\frac{1}{4}$ 'kFDr
- izu 7& ,fl fVYhu dk vks] kSxd fuekZk dS sfd;k tkrk gS\ fof/k] fp=] jI k; fud I ehdj.k fyf[k, A

nh?kz mUkjh; izu

- izu 1& dkcfud ; kSxd fdrus izdkj dsgkrsgS\ , d pkVZ inf'kr dhft, rFkk iR; d ds mnkgj.k Hkh fyf[k, A
- izu 2& I eko; ork dks ifjHkkf"kr dj] LFkku , oa fØ; kRed I eko; ork dks mnkgj.k I fgr I e>kb; sA
- izu 3& ,d dkcfud ; kSxd dk v.kqI = Kkr dhft, ftI ea H $\frac{3}{4}$ 2-48%] I YQj $\frac{3}{4}$ 39-1% rFkk 'kSk vkDI htU gSA
- izu 4& iz ks'kkyk ea 'kq) ehFksu cukus dh fof/k dk o.kZu fuEu 'kh"kdka ea dhft, &
- $\frac{1}{4}$ fof/k $\frac{1}{2}$ jI k; fud I ehdj.k $\frac{1}{4}$ mi dj.k dk fp=
- izu 5& xkcj xS I a = fuekZk dsl e; /; ku eaj [kus; kx; iZ[k I ko/kkfu; kafyf[k, A
- izu 6& ,fl fVYhu cukus dh iz ks'kkyk fof/k dk o.kZu fuEu 'kh"kdka ea dhft, &
- $\frac{1}{4}$ fof/k $\frac{1}{2}$ jI k; fud vfHkfØ; k $\frac{1}{4}$ v'kq); kanw djuk
- $\frac{1}{4}$ vko'; d fp=
- izu 7& ijKfQu] vkSfQu rFkk ,Ydkbu dks mnkgj.k I fgr I e>kb; sA

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fd.ou & ,Ydkgy & ;fj;k ,oa t~~o~~ jlk; u

vfr y?kq mÜkj; i zu

izu 1& I (e thoka dh mi fLFkr ea gkus okyh jkl k; fud vfHkFØ; k dks i fjHkkf"kr dj mngj.k fyf[k, A

izu 2& ekukgkbM~~d~~ ,Ydkgy D; k gS\

izu 3& ekuk~~d~~ jkbM~~d~~ D; k gS\ mngj.k ndj I e>kb; sA

izu 4& V~~o~~dkQjW~~y~~ fdl sdgrsg\ bl ds dk; ZrFkk i kflr L=kr fyf[k, A

izu 5& ,fFkyhu I s ,Ydkgy ds i klr fd; k tkrk gS Li"V dhft, A

izu 6& ,Ydkgy dh fx~~x~~ukMZ vfHkde~~d~~ ds I kFk D; k vfHkFØ; k gkrh gS\ jkl k; fud vfHkFØ; k nhft, A

izu 7& dk~~e~~kbM cukus dh Ogkyj fof/k fyf[k, A

izu 8& NH₂CONH₂ dk dkbz, d i jh{k.k fyf[k, A

izu 9& 0; kol kf; d ,Ydkgy dk nq i ; kx jkdusgrqdkS I k rjhdk vi uk; k tkrk gS I e>kb; sA

izu 10& LVkpZ ds mi ; kx fyf[k, A

izu 11& i k~~v~~hul D; k gS\ jkl k; fud I xBu fyf[k, A

izu 12& vehuks vEy D; k gS\ mngj.k I fgr I e>kb; sA

izu 13& vYdkgyh; i s ds oxh~~d~~j.k dks I e>kb; sA

izu 14& foVkfell dk oxh~~d~~j.k dks I e>kb; sA

izu 15& ,fFky ,Ydkgy dh Dykjhu ds I kFk jkl k; fud vfHkFØ; k fyf[k, A

y?kq mÜkj; i zu

izu 1& ,fFky ,Ydkgy gekjsfy, fdl i~~d~~kj mi ; kxh gS\

izu 2& ok; q ku vkfn eafdl i~~d~~kj ds bZku dk mi ; kx fd; k tkrk gS\ I e>kb; sA

izu 3& ,fFky ,Ydkgy dk ,fFkyhu I sfdl i~~d~~kj fuekZk fd; k tkrk gS\ I e>kb; sA

- izu 4& vks| kfxd Lrj ij ; fjj; k fuekZ k dh fof/k fyf[k, A
- izu 5& Xywdks dh egUkk fyf[k, A
- izu 6& dSYI Qj kw] ik; fjMKNDI u dsL=kr rFkk deh ds y{k.k fyf[k, A
- izu 7& fd.ou grq vkn'kZ i fjfLFkr; ka fyf[k, A
- izu 8& , atkbEI fdl sdgrsga \ mi ; kx fyf[k, A
- izu 9& vk.kfod I j puk ds vk/kkj ij dkckjkbMM dk oxhdj.k dhft, A
- izu 10& LVkpZ }kjk vYdkgy fuekZk dh fof/k dks fuEu fclnqea of.kZ dhft, &
 ¼½ 'kdjkdj.k ¼½ fd.ou ¼½ ij'kksku A

nh?kZ mUkjh; izu

- izu 1& YDVkst cukus dh iz kx'kkyk fof/k rFkk mi ; kx fyf[k, A
- izu 2& jkl k; fud I aBu ds vk/kkj ij iks/ku dk oxhdj.k dhft, A
- izu 3& ^vko'; d vehuks vEy** dsuke fy[kdj ekuo 'kjhj ds egRo fyf[k, A
- izu 4& 'khjs I svYdkgy fuekZk ea fuEu dks I e>kb; s&
 ¼½ 'khjs dks ruqD; ka fd; k tkrk gS ¼½ blUvst rFkk tk; est dk dk; Z
 ¼½ vkl ou
- izu 5& fuEu ij fVli .kh fyf[k, &
 ¼½ ok'k ¼½ ij'kksku ¼½ vxjy ¼½ ekYV

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bdkbz & 05

{ks=fefr

vfr y?kq mÜkj; i zu

izu 1& fo"keokgf=fHkqt dk fp= cukdj {ks=Qy dk I # fyf[k, A

izu 2& I eyEc prHkqt rFkk oxZ ds {ks=Qy dk I # fyf[k, A

izu 3& vk; r dk fp= cukdj bl ds {ks=Qy dk I # fyf[k, A

izu 4& , d I eprHkqt ds vkdkj ds i {ks= ds fod.kZ Øe'k%30 vkj 60 I seh- gS rks i {ks= dk {ks=Qy Kkr dhft, A

izu 5& , d I eyEc prHkqt dk {ks=Qy Kkr dhft, ftI dh Hkqt k, a¼ ekr j½ 28 I seh- vkj 45 I seh- gS rFkk muds chp dh njih 15 I seh- gSA

izu 6& ml oÜk dh f=T; k Kkr dhft, ftI dh ifjf/k 35 π I seh- gSA

izu 7& , d ifg, dh f=T; k 70 I seh- gSA 100 pDdj ?kæusea ifg; k fdruh njih r; djsxk A

izu 8& , d I eckggf=fHkqt dh , d Hkqt k 6 I seh- g\$ rks bl dk {ks=Qy Kkr dhft, A

y?kq mÜkj; i zu

izu 1& , d f=Hkqt kdkj [kr dh Hkqt k, a10] 20] 30 I seh- gS rks f=Hkqt dk {ks=Qy Kkr dhft, A

izu 2& , d or dh f=T; k 14 I seh- g\$ rks or dh ifjf/k o {ks=Qy Kkr dhft, A

izu 3& , d vk; rdkj [kr dk {ks=Qy 24000 oxZehVj g\$ vkj yEckbz 50 ehVj gS rks [kr dh pk&mkbz Kkr dhft, A

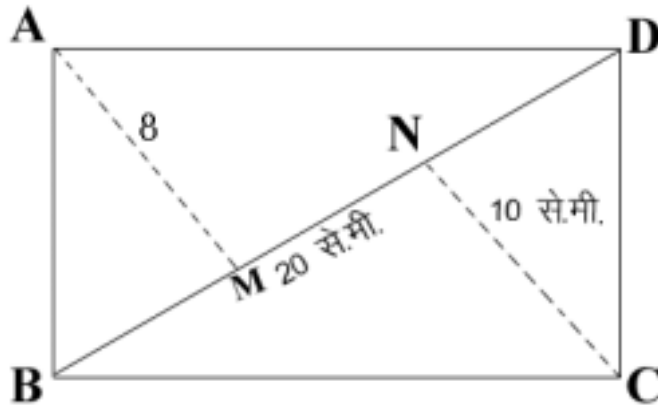
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nh?kz mÜkj; i zu

izu 1& ml oÜk dh ifjf/k Kkr dhft, ftI dk {ks=Qy mruk gh g\$ ftruk fd 21 ehVj pk&srFkk 66 ehVj yEcs vk; r dk gSA

izu 2& , d ykgs dh iVvh dks oxkdkj ekMus ij og 144 oxZ I seh- {ks=Qy ?kj rh g\$; fn iVvh dks oÜkkdkj ekMk tk, rks og fdruk {ks=Qy ?kj sxh A Kkr dhft, A

उत्तर 3) एक समकोण त्रिभुज का क्षेत्रफल, &



उत्तर 4) एक समकोण त्रिभुज का क्षेत्रफल, जिसकी धातु की लंबाई 14 सेमी है, &

&&00&&

bdkbZ & 06

I kã[; dh

vfr y?kq mÜkj h; i zu

izu 1& I kã[; dh dk Ñf" k {ks= ea egRo fyf[k, A

izu 2& I kã[; dh dh i fjHkk"kk fy[kdj] fo'kSkrrk, a fyf[k, A

izu 3& I kã[; dh ds egRo i wkZ dk; Z fyf[k, A

izu 4& or fp= ¼i kbZ vkj s[½ I sD; k vk'k; gS \ mnkgj.k nhft, A

izu 5& ef/; dk dks i fjHkkf"kr dj bl ds xqk fyf[k, A

izu 6& I rr Jskh dk cgyd Kkr dj usgrqI = fyf[k, A

izu 7& I = $Me = L_1 + \frac{L_2 - L_1}{F}(m - c)$ }kj k D; k Kkr fd; k tkrk gS \ I dsrka ds vFkZ Hkh
fyf[k, A

izu 8& ekud fopyu fdl sdgrsgã \ bl ds xqk Hkh fyf[k, A

izu 9& fuEu vkdMka dk cgyd Kkr dhft, &
10] 12] 10] 11] 12] 11] 13] 11] 12] 13] 11

izu 10& fuEu vkdMka I sef/; dk Kkr dhft, &
30] 20] 25] 22] 28] 24] 26

izu 11& i kã Nk=ka ds xf.kr fo" k; ds i klrka dh uhrs fn, x, gã i klrka ka dk I ekUrj
ek/; Kkr dhft, &
65] 68] 70] 72] 78] 85

izu 12& fuEu vkdMka I sA dk eku Kkr dhft, ; fn I ekUrj ek/; 7 gS&3] 5] A] 9] 11

y?kq mÜkj h; i zu

izu 1& fuEu I kj.kh I s I ekUrj ek/; Kkr dhft, &
vk; % 10] 12] 14] 16
vkofÜk 7] 2] 12] 4

izu 2& fuEu I kj.kh I sy?kqfof/k }kjk I ekvj ek/; Kkr dhft, &
 oxlvvrjky ¾ 0&6] 6&12] 12&18] 18&24
 vkofük ¾ 6] 8] 10] 3

izu 3& fuEu vkadMka I sef/; dk Kkr dhft, &
 15] 18] 11] 17] 14] 19] 22] 20

izu 4& fuEufyf[kr I kj.kh ea30 Nk=ka dh vk; qnh xbzg} ef/; dk dh x.kuk dhft, &
 vk; q & 12] 14] 16] 18] 20
 Nk=ka dh I q; k & 6] 5] 14] 3] 2

izu 5& fuEu cVu }kjk cgyd Kkr dhft, &
 in & 20] 21] 22] 23] 24] 25
 vkofük & 7] 9] 7] 12] 8] 4

nh?kz mükjh; izu

izu 1& fuEu I kj.kh }kjk ekud fopyu Kkr dhft, &
 oxl & 0&10] 10&20] 20&30] 30&40] 40&50
 vkofük & 2] 4] 7] 4] 3

izu 2& fuEufyf[kr vkadMks I soük vkjs[k ¼ kbz vkjs[k½ cukb; s &
 fo"k; & foKku] vaxst h] xf.kr] I lÑr] fglnh
 i tlrkd & 65] 60] 70] 80] 75

izu 3& fuEufyf[kr vkadMka dks I jy n.M fp= }kjk iLrqr dhft, &
 o"kz & 1995] 1996] 1997] 1998] 1999] 2000
 vk; kr & 110] 85] 60] 46] 31] 25

izu 4& fuEu I kj.kh I scgyd Kkr dhft, &

in	10	12	14	16	18	20	22	24	26	28
vkofr	7	12	10	25	18	15	25	7	5	9

izu 5& fuEu I kj.kh I sef/; dk dh x.kuk dhft, &
 in & 0&5] 5&10] 10&15] 15&20] 20&25
 vkofük & 7] 9] 6] 15] 3

&&00&&

bdkbz & 07

vupki'kdh & fofHkUurk & ikni iztuu

vfr y?kq mÜkjh; izu

- izu 1& ml foKku dh ifjHkk"kk fyf[k, ftl ea oákkxfr vksj fHkUurk dk v/; ; u fd;k tkrk gS\
- izu 2& thuks/kbi vksj Qhuks/kbi dk vFkzfyf[k, A
- izu 3& l gyXurk l sD; k rkRi ; Zg\$ l e>kb; sA
- izu 4& ikni iztuu dh fofHkUu fof/k; ka ds uke fyf[k, A
- izu 5& l dj vkst D; k gS\ l e>kb; sA
- izu 6& ikni iztuu dh dks l h fof/k eafdl h fof'k"V ikni dks ml ds eny LFkku l s nj ubz tyok; qea mxk; k tkrk gS\ ml fof/k dk mnkgj.k fyf[k, A
- izu 7& ikni iztuu dh l jy 'kCnka ea ifjHkk"kk fyf[k, A
- izu 8& f}l dj Økl l sD; k vk'k; gS\
- izu 9& thu fofue; dh fo'k\$krk, a fyf[k, A
- izu 10& V&V Økl dks l e>kb; sA
- izu 11& ; ke fodYi D; k gS\ Li"V dhft, A
- izu 12& c&l Økl dks l e>kb; sA

y?kq mÜkjh; izu

- izu 1& vupki'kdh dk Ql y mRi knu ea egRo fyf[k, A
- izu 2& esMy us vi us iz k\$ka g\$ qeVj ds i k\$ks dk puko D; ka fd; k \ dkj.k fyf[k, A
- izu 3& esMy ds i Fke fu; e dh mnkgj.k l fgr 0; k[; k dhft, A
- izu 4& l gyXurk dh ekxZu /kkj.kk dks l e>kb; sA
- izu 5& vupki'kd fofHkUurk ds dkj.k l e>kb; sA
- izu 6& vupki'kd vfHk; ka=dh dk Ñf"k fodkl ea; k\$nknu fyf[k, A
- izu 7& ikni iztuu Ñf"k ds fodkl eafdl izdkj l g; k\$kh gks l drk gS\ Li"V dhft, A

izu 8& Ård I d/kz dk vFkz , oavui; z ks fyf[k, A

nh?kz mUkjh; izu

izu 1& esMy dsrrh; fu; e dks mngj .k }kjk I e>kb; sA

izu 2& esMy dh I Qyrk dsD; k dkj .k Fks \ 0; k[; k dhft, A

izu 3& thu fofue; dh fØ; k fof/k dks I e>kb; sA

izu 4& I gyXurk dk oxhij .k djrsqg bl dk egRo fyf[k, A

izu 5& cgqf .krk iztuu rFkk mRi fjozU dks I e>kdj Ñf"k foKku es egRo fyf[k, A

&&00&&

bdkbz & 08
oxZ bUI ĐVk , oa vkfFkZd egRo ds dhV

vfr y?kq mÜkj; iZu

- izu 1& oxZ bUI ĐVk ds 10 dhVka ds uke fyf[k, A
- izu 2& , DI kSVj hXk/k mi I eg ds y{k.k fyf[k, A
- izu 3& vkfFkZVjk x.k ds iæq[k y{k.k rFkk mnkgj.k fyf[k, A
- izu 4& nhd dks I s x.k ds varxZ j[kh xbz gS\ ml x.k dh fo'kSkrrk, a fyf[k, A
- izu 5& /kku ea yxus okys pkj dhVka ds uke fyf[k, A

y?kq mÜkj; iZu

- izu 1& jks QSykus okys dhVka dks D; k dgrs gS\ I Vhd mnkgj.k }kjk I e>kb; sA
- izu 2& pus dh QI y ea dks I s iæq[k dhV gkfu igpkrsgS\ bu dhVka ds fu; æ.k ds fy, mik; I fkb; sA
- izu 3& xlus dh QI y dks dks I s iæq[k dhV upl ku igpkrsgS\ I eflor dhV izk }kjk fu; æ.k dh fof/k crkb; sA

nh?kZ mÜkj; iZu

- izu 1& oxZ bUI ĐVk ds iæq[k y{k.k fyf[k, A
- izu 2& I fct; ka ea yxus okys nl dhVka ds uke fyf[k, rFkk buds izk dh mfpr fof/k crkb; sA

&&00&&

bdkbz & 09
ykhknk; d dhV

vfr y?kq mÜkjh; izu

- izu 1& e/kæD[kh dks oxZ bUl DVk ds vxZr D; ka oxhÑr fd;k x;k gS \ dkj.k fyf[k, A
- izu 2& e/kæD[kh dks I kekftd dhV D; ka dgk tkrk gS \ dkj.k fyf[k, A
- izu 3& e/kæD[kh ea us= czk] , f.Vuk dMlc rFkk ijx Vksdjh 'kjhj ea dgk; ikbz tkrh gS \
- izu 4& jkuh e/kæD[kh v.Mks dk fu"kpud fdl izdkj djrh gS \
- izu 5& yk[k dhV ds ikskd ikska ds uke fyf[k, A
- izu 6& fo'o ea yk[k mRi knu ea Hkkj ro"iz dh fLFkr Li"V dhft, A
- izu 7& jške dhV dk oxZ I ?k] x.k] oäk iztkfr fyf[k, A
- izu 8& I jhdYpj rFkk chdhfi æ dk vFkz fyf[k, A
- izu 9& yk[k dhV dk oxhZbj.k fyf[k, A
- izu 10& jške dhV dh okg; vkdkfjdh fyf[k, A

y?kq mÜkjh; izu

- izu 1& jške dhV fdl izdkj dks k fuekZk djrk gS \ I e>kb; sA
- izu 2& yk[k dhV ikyu fdl izdkj ykhkdjh gS vi usfopkj fyf[k, A
- izu 3& yk[k eadksu&dksu I sinkFkZ ied[k : i I sik, tkrsg] mudk ifr'kr fyf[k, A
- izu 4& jkuh e/kæD[kh dh 'kkjhfd fo'kskrk, a fyf[k, A
- izu 5& e/kæD[k; ka dh dkbz pkj iztkfr; ka ds oKkfud uke fyf[k, A
- izu 6& 'lgn dk I æBu , oaegRo fyf[k, A
- izu 7& eknk yk[k dhV dh fo'kskrk, a fyf[k, A
- izu 8& Jfed e/kæD[kh dk egRo crkb; sA

nh?kz mÜkjh; izu

izu 1& Hkkjr ea ikuh tkus okyh jske dhV dh fuEu iztkfr; ka ds oSkkfud uke , oa fo'kSkrrk, afyf[k, &

¼½ VI j jske dhV

¼½ epk jske dhV

¼½ ,jh jske dhV

¼½ no epk jske dhV

izu 2& Hkkjr ea ifr o"kz yk[k dh fdruh QI ya yh tkrh gá \ pkVZ }kjk inf'kr dhft, A

izu 3& e/keD[kh ikyu cjkst xkjh nij djuseafdl izdkj l gk; d g\$ fo'y\$sk.k dhft, A

izu 4& jske dhV dh fuEu voLFkkvka dh fo'kSkrrk, afyf[k, &

¼½ v.Ms rFkk v.Mjksi .k

¼½ bYyh

¼½ dks k fuekZ.k

&&00&&

nh?kz mÜkjh; izu

izu 1& 'ol u ea dks I h fØ; k ea ik; : fod vEy curk gS\ ml fØ; k dks I fki ea
fyf[k, A

izu 2& fgy vfhkfØ; k dks I e>kb; sA

izu 3& mi dy i si fy; kus h dk fuEu fclnqka ea o.ku dhft, &

¼½ i Ükh] ¼½ i ti Øe] ¼ ½ i ti ¼½ nyi t

¼½ i pax ¼½ tk; kax ¼ ½ i ti I w

izu 4& Ø hQjh dy dsfof'k"V y{k.k , oa vkfFkd egRo fyf[k, A

izu 5& fuEu dyka dk i ti fp= cukb; s&

¼½ i si fy; kus h ¼½ ekyod h

izu 7& ikne gkeku ftcjfyu , oa vkfDI u dk egRo fyf[k, A

izu 8& t b rduhfd dk Ñf"k fodkl ea egRo fyf[k, A

izu 9& I ks kus h dy dk fclnqkj okuLifrd o.ku dhft, A

izu 10& t b rduhfd dk t b mojdka dsfodkl ea ; kxnku fyf[k, A

&&00&&

d{kk &12 Oka 1/2 Nf'k LkEkj½
Nf'k fokKkUk ds RkRk , Oka Xkf.kRk

bdkbZ &1

vFRkYk?kqRRkj_h,k Ikz Uk

- Ikz Uk &1& LkRkh fNæ dGkjs dk UkkEkkfDRk fPk«k CkUkkb_ksA
- Ikz Uk 2& _kfn dkPk dk , d VpDMk CkhPk Eka IRkYk RkFkk fdUkjs Ikj Ekks/k g\$ Rkks bLks vkk D_kk LkEkÖkKk\$ bLkdh nks fok'ksRk, j fYkf[k, A
- Ikz Uk 3& vkk _kfn , d Ykgs dh NM dks IkkUkEka Mqk, Xks Rkks NM dk Mqk gqk fgLLk IkkUk Eka FRkjNk fn[kkbZ nXkA dkj.k LkfgRk LIk"V fYkf[k, A

Yk?kqRRkj_h,k Ikz Uk&

- Ikz Uk 1- mRRkYk Yk_k }kjk IkrkfcEck dk CkUkk fPk«k }kjk Iknf'kRk dh fTk, Tkckfd OkLRkq vUURk Ikj gkA
- Ikz Uk 2- Tkck OkLRkq dk vkdkj Ikdk'k L«kRk ds vkdkj Lks CkMk gks Rk\$ bLk fLFkRk Eka mIKPNk_kk , Oka IKPNk_kk dk CkUkk Pk«k }kjk Iknf'kRk dhfTk,
- Ikz Uk 3- LkjYk LkqEkn'khz }kjk IkrkfcEck dk CkUkk] j\$kk fPk«k }kjk Iknf'kRk dhfTk, A
- Ikz Uk 4- vkk 'kq\$ LIkDVek fdLk Ikdkj IkkIRk djXkA

nh?kzRRkj_h,k Ikz Uk

- Ikz u 1- , d LkjYk LkqEkn'khz dk mRRkYk Yk_k fTKLkdh QkdLk njh 10 LksEkh- g\$ Uksk Lks 5 LksEkh- dh njh Ikj j[kk gSA bLkdh vf/kdRkEk vkOk/kk {kEkRk KkRk dhfTk, A

bdkb&02

fok | Bk , Oka fok | Bk ds mlkdj.k

vFRkYk?kqÜkj_h,k Ikz Uk &

- Ikz Uk 1- , d PkYkd dh Yk_kkZ nqkqkh dj nh Tkk, Rkks mLkds Ikrkjsk Ikj D_kk Ik_kk IkM_kk\
- Ikz Uk 2- Ikdk'k fok | Bk Lk\$y dk UkkEkkfDRk fPk«k CkUkkb_ksA

Ikz Uk 3- fOk | Bk dk dk,kz djRks LkEk,k YkdMh ds LVWk vkfn dk mlk,kkXk D,kka fd,kk TkkRkk gA

Yk?kqnÜkj h,k Ikz Uk

Ikz Uk 1- ,kfn ?kjYkq fOk | Bk fQfVXk Eka ¶,kñk dk mlk,kkXk Ukgha fd,kk Tkk,ks Rkks D,kk gkXk\

Ikz Uk 2- fOk | Bk Okkgd CkYk vksj fOkHkOkkBkj Eka RkhUk vBkj fYkf[k, A

Ikz Uk 3- Pkkanh dks fOk | Bk dk LkCkLks vPNk PkYkd EkkUk TkkRkk gS D,kka vIkUk vfHkEkRk js[kkñdRk dhfTk, A

Ikz Uk 4- vIk ?kj Eka fOk | Bk dh [kIkRk dEk djUks ds fYk, dkØ&dkØ Lks mlk,k djXkA LkPkh CkUkbb,ks A

Ikz Uk 5- vkTkdYk IkjAkjk XkRk CkYk , Oka Vî Bk YkkbV dh vIkSkk Lkh-, Q-, Yk- dk mlk,kkXk D,kka Ck< jgk gS

nh?kzñRRkj h,k Ikz Uk &

Ikz Uk 1- , d dEkjs Eka , d CkYk] Ik[kk IYkXk IOkkbA/ gBkq vkOk' ,kd fOk | Bk Ikfj IkFk CkUkbb,ks A

OkLRkqUk"B Ikz Uk

fjDRk LFkkUk dh IkRkz dhfTk, &

Ikz Uk 1- 'kfdRk dk Ekk«kd &&&&&gS A

Ikz Uk 2- vEk ds fUk,kEk dk LkR,kkIkUk djRks LkEk,k OkkVVEkhVj dks &&&&&&&ØEk Eka TkkA/k TkkRkk gA

Ikz Uk 3- dkPk dh NM dks js'kEk Lks jXkMUks Ikj NM Eka&&&&&&vkOks'k mRIkUk gkRkk gA

Ikz Uk 4- , Ek-ds, Lk- Ik) fRk Eka vkOks'k dk Ekk«kd &&&&&&&gkRkk gA

Ikz Uk 5- , fEIk,kj &&&&&&&dk Ekk«kd gA

mÜkj& 1- OkkV 2- LkEkBkj ØEk 3- /kUk 4- dWkEk 5- /kkjk

Lkgh TkkMh CkUkkb,ks&

- | | | |
|----|--|----------------------|
| | v | Ck |
| 1- | TKUkj\j LkYk | LVkVj |
| 2- | UkkbØkEk | mPPk IkfRkjksk Rkkj |
| 3- | vkEk | Ikzk'k fok Bk LkYk |
| 4- | Ikzk'k ÅTkkz dk fok Bk ÅTkkz Eka IkfOKRkZk | IkfRkjksk dk Ekk«kd |
| 5- | Eks\j vkeBkj dh j{kk gBkq | fok Bk Okkgd CkYk |

LkR,k vLkR,k &

- Ikz Uk 1- fok | Bk Eks\j] fok | Bk/kkj ds PkqCkdh,k IkHkkOk Ikj vk/kkfjRk , d ,kfDRk gA
- Ikz Uk 2- ghVj Å"Ekh,k ÅTkkz dks fok | Bk ÅTkkz Eka IkfjOkfRkRk djRkk gA
- Ikz Uk 3- , d v'Ok 'kfDRk CjkCkj 746 OkkVA
- Ikz Uk 4- , d bYkDVrUk Ikj vkOksk dh Ekk«kk 3 &10 9 LFkRk , fElk,kj gkRkh gA
- Ikz Uk 5- IkfRkjksk fdLkh PkYkd Eka /kkjk ds CkgOk Eka Lkgk,kRkk djRkk gA
- mUkj&** 1- LkR,k 2- vLkR,k 3- LkR,k 4- vLkR,k 5- vLkR,k

Lkgh fokdYk PkqUk, &

- Ikz Uk 1- fok | Bk Okkgd CkYk dk Ekk«kd gA
v- , fElk,kj Ck- Okk\V Lk- dWkkek n- U,kw/Uk A
- Ikz Uk 2- Eks\j LVkVj Eka PkqCkd gkRkk g&
v- n.M PkqCkdj Ck- UkkYk PkqCkd Lk- OkYk,k PkqCkd n- fok | Bk PkqCkd
- Ikz Uk 3- fdLkh PkYkd dk IkfRkjksk mLkdh YkEckbz d&
v- vUkØEkkUkqkRkh gkRkk gS Ck- O,kBkØEkkUkqkRkh gkRkk gS
Lk- CjkCkj gkRkk gA n- nqkqk gkRkk gA
- Ikz Uk 4- fdLkh PkYkd Eka 1 Lkd.M Eka 1dWkkek vkOksk IkOkkfgRk gkRkk gS Rkks mLkEka CkgUks
OkYkh /kkjk dk EkkUk&
v- 1 Tkwk Ck- 1 OkkV Lk- 1 vkEk n- 1 , fElk,kj

- Ikz Uk 5- vkek&EkHVj Ekk&kd g&
 v- fokf' k"V IkfRkjksk dk c- fokf' k"V PkkYkdRkk dk
 Lk- IkfRkjksk dk n- fok | Bk Okkgd CkYk dk A

bdkbz & 3

fjDRk LFkkUkka dh IkRkz dhfTk, &

- Ikz Uk 1- , FkSk dk IUPAC UkEk &&&&&&&g&
 Ikz Uk 2- , fLkfvYkhUk Xk&k IkfRk Eka&&&&&vOkLFkk Eka Ukgha Ikkbz TkkRkh g&
 Ikz Uk 3- IkfYkFkhUk dk fUkEkz k] , fFkYkhUk ds &&&&&&& }kj k fd, k TkkRkk g&
 Ikz Uk 4- EkLVMZ Xk&k dk fUkEkz k &&&&& }kj k fd, k TkkRkk g&
 Ikz Uk 5- Xk&k OkfYkM&k Eka &&&&&&&Xk&k dk mlk, k&k fd, k TkkRkk g&
 Ikz Uk 6- Xk&kj Xk&k Eka Ekq, kRk% &&&&&&&Xk&k LkCkLks vf/kd gk&k g&
 Ikz Uk 7- Ok, k&k&kd fTkUkds v. kq, k&k LkEkUk gka Ikj Bkq Xkq k fHkUk gks &&&&&&&dgYkkRks g&
 Ikz Uk 8- , fLkfvd vEyK dk IUPAC UkEk &&&&&&&g&
 Ikz Uk 9- , fFkYkhUk Eka dkCk&k Ikj Ekk. kq/ka ds Ek/ k &&&&&&&&Ck&k gk&k g&
 Ikz Uk 10- C₂H₅OH Eka fØ, k&k&k LkEk& g&
 m&kj & 1- , FkhUk 2- LOkR&k 3- Ckgykhdj .k 4- , fFkYkhUk 5- , fLkfvYkhUk 6- EkfFk&k
 7- LkEk&k, k&k 8- , Fk&k&k&k&k&kbd vEyK 9- f} 10 (-OH)

&Lkgh Tkk&h CkUkkb, k&

- | v | Ck |
|-----------------------|-------------------------------|
| 1- , fFkYkhUk | a) , fLkfvYkhUk |
| 2- d&Y' k, kEk dkCk&M | b) Ek&k&k |
| 3- Ek&khUk | c) n 1/2Ek&k&k&k&k&k&k Lk&k&2 |
| 4- , Fk&k&k&k | d) QYkka dks IkdkUk |
| 5- v. kq, k&k | e) , fFkYk vYdk&Yk |

m&kj & 1- d) 2-a) 3-b) 4- e) 5-c)

Lkr,k vLkr,k NkfV,k&

- 1- EkYkkUkkkkRkh Lkwk v.kq Eka mIkFLFkrk IkjEkk.kq/ka dh vIkK&{kd Lka,kk Iknf'krk djRkk g&
 - 2- ,kk&Xkd ds jLkk,kfUkd Xkqk ,fydYk LkEkng fuk/kkZjRk djRkk g&
 - 3- LkTkkRkh,k Js kh ,d gh fØ,kkREkd LkEkng ,kDRk dkCkZUKd ,kk&Xkdka dh Js kh g&
 - 4-
$$LkkUæRkk = \frac{fokYk,kuk \text{ dh } Ekk\llk}{fokYkk,kd \text{ dh } Ekk\llk}$$
 - 5- 'kfDRk ds : Ik Eka fokYk,kuk dh Ekk\llk XkkEk IkfRk fEk-Ykh- Eka O,kDRk dh TkkRkh g&
- mÜkj &** 1- Lkr,k 2- vLkr,k 3- Lkr,k 4- vLkr,k 5- vLkr,k

Lkgh fokdYik PkVkdj fykf[k, &

- Ikz Uk 1- fdLkh fokYk,kuk ds ,d YkhVj Eka?kqYksqq fokYksk ds XkkEk Rkq,kka dh Hkkjka dh Lka,kk dgYkkRkh g&
 - v- IkfRk'krkRkk 2- UkkEkYkRkk 3- EkkykjRkk 4- LkkæRkk
 - Ikz Uk 2- Kkrk LkkæRkk OkYks fokYk,kuk dh LkYkgk,kRkk Lks vKkrk LkkæRkk OkYks fokYk,kuk dh LkkæRkk Kkrk djUkk dgYkkRkk g&
 - v- vUkqkkIkuk Ck- Ckgq'khaj.k Lk- LkEk&khaj.k n- vkLkOkuk A
 - Ikz Uk 3- Lkuk-1828 Eka Ogkykj Uks Ikzkk&k'kkYkk Eka dk&Lk dkCkZUKd IknkFkZ CkUkk,kk Fkk&
 - v- vYdkgyk Ck- ,LkhVd vEYk Lk- Ikks/k'k n- ,kfij,kk Ikz Uk
 - Ikz Uk 4- ,jk&khVj ,kk&Xkd g&
 - v- bF&Lk Ck- EkhF&Lk Lk- Cka'khuk n- ,fLkFVYkhuk A
 - Ikz Uk 5- LkTkkRkh,k Js kh ds nks ØEkkXkrk LknL,kka Eka v&Lkj gk&Lk g&
 - v- CH₂ dk Ck- CH₄ dk Lk- CH₃ dk n- bukEka Lks dk&Z UkghA
- mÜkj** 1& Ck] 2& v] 3& ,kfij,kk] 4- Lk-

bdkb7 & 4

fjDRk LFkkUkka dh IkRkz dhFTk, &

- Ikz Uk 1- fd. OkUk dh fØ, kk Eks&&&&&dkCkZUKd , kkSxkdka dk vIk?kVUK &&&&&&&dkCkZUKd , kksXkdka Eka gkRkk gA
- Ikz Uk 2 fXYkLkjkwk , d &&&&&&&vYdkgYk gA
- Ikz Uk 3 'kDdj , kDRk lknkFkkz Eka LkCkLks vf/kd &&&&&&dk mIk, kkkk vYdkgYk CkUkkUks Eka gkRkk gA
- Ikz Uk 4 XYkwdk.k dk v. kq,ka &&&&&&&gA
- Ikz Uk 5- 'kDdj dks RkUq HCl , kk H₂SO₄ dh mIkfLFkFRk Eka TkYk vIk?kfVRk djUks Ikj &&&&&&&RkFkk &&&&&& CkURkk gA
- Ikz Uk 6- Ikks/huk ds v. kq,ka Eka , d vEkhuKks vEYk nIkj's vEkhuKks vEYk Lks &&&&&&&Ckdk }kjk Tkq/s jgRks gA
- Ikz Uk 7- fOkvEkhuK Lkh dh dEkh Lks &&&&&&jkkk gkRkk gA
- Ikz Uk 8- vkOk' , kd vEkhuKks vEYk dh Lkq, kk &&&&&&&&gA
- Ikz Uk 9- EkUkOk Ekwk Lks &&&&&&&CkUk, kk Tk LkdRkk gA
- Ikz Uk 10- Okk'k Eka &&&&&&&IkFRk' kRk vYdkgYk gkRkk gA

mUkj & 1- tfVy&l jy 2- VRbz ; k i kWy/hgkbfM@d] 3- 'khj} 4- C₆H₁₂O₆ 5- XYkwdk.k&Y@VksTj] 6- lksVkbM] 7- LdOkh] 8- 10] 9- ,kij ,kk] 10- 10%

LkR,k vLkR,k NkfV, &

- Ikz Uk 1- fd. OkUk dh fØ, kk RkUq fOkYk, kUk Eka RkhOkRkk Lks gkRkh gA
- Ikz Uk 2- , UTkkbEk TkkbEksTk LkØk.k dks XYkwdk.k , Oka Y@VksTk Eka lKfj OkFRkRk dj nBkk gA
- Ikz Uk 3- FkEkkekhVj Eka vYdkgYk dk mIk, kkkk fd, kk TkRkk gA
- Ikz Uk 4- ,kij ,kk Eka dkCkZk vKj vkDLkhTkUk ds v. kq Eka fekCkdk gkRkk gA
- Ikz Uk 5- lksTLkUk , d Ikks/huk gA

mUkj & 1- LkR,k 2- vLkR,k 3- LkR,k 4- vLkR,k 5- vLkR,k A

Lkgh Tkkmh CkUkkb, k&

- 1- fV1VkQbk ¼/½ , UTkkbEk
- 2- fVfILkUk ½c½ fOkVkfEKUk
- 3- VksdkQj kYk ¼ ½ lks/huk
- 4- XYkks, kñYkUk ¼n½ EkkskkLkSdj kbM
- 5- XYkndkk ½o½ vkOk' ,kd vEkhUks vEYk

mRRkj 1& b] 2& v] 3&Ck] 4&Lk] 5&n

Lkgh fOkdYik Pkdkdj fYkf [k, &

- 1- gOkkbZ Tkgtk Eka bAkuk ds : lk Eka mlk, kkkk fd, kk TkkRk g&
v- fLlkfjV Ck- lkkkj vYdkgYk Lk- lkk fLlkfjV n- bukEka Lks dkbZ UkghA
- 2- vLLkOkuk ds lk' PkkRk lkkIRk vYdkgYk dh 'kq Rkk gkRk g&
v- 70% Ck- 80% Lk- 90% n- 95%
- 3- dSY' k, kEk dkCkkbM lkj Tkyk dh fØ, kk }kj k fUkEKU Eka Lks dkSk Lkh XkSk CkURkh g&
v- gkbMksTkuk Ck- EkfFkk Lk- CkTkuk n- DYkkj huk A
- 4- , fLkfVYkhuk ds CkgYkhdj . k Lks lkkIRk gkRk g&
v- vEkksUk, kk Ck- UkkbVksTkuk Lk- CkTkuk n- DYkkj huk A
- 5- fUkEKU Eka OkLkk ?kq'kuk' khYk fOkVkfEKUk Ukgha g&
v- fOkVkfEKUk A Ck- fOkVkfEKUk B Lk- fOkVkfEKUk D n- fOkVkfEKUk E

mUkj&1- Ck] 2- Lk] 3- n] 4- Lk] 5- CkA

bdkb 5

fjDRk LFkkUkka dh lkRkz dhfTk, &

- lkz1& LkEdks k f«kHkqk dk {k«kQYk $\frac{1}{2}$ &&&&& × &&&&&gkRkk gA
- lkz2& OkRRkkdkj OkYk,k dk {k«kQYk π × &&&&&&&gkRkk gA
- lkz 3& ,d f«kHkqk dk vk/kkj 42 RkFkk ÅPkkbz 14 EkhVj gS Rkks mLdk {k«kQYk &&&&&&&gkRkkA
- lkz 4- Lk«k $\frac{1}{2}a^2$ }kjk &&&&&&&f«kHkqk dk {k«kQYk KkRk fd,kk TkRkk gA
- lkz 5- ,d OkXz dh Hkqkk 5 LkEk- gS Rkks mLdk {k«kQYk &&&&&&&gkRkk A

LkR,k vLkR,k NkfV, &

- lkz1& OkRRkkdkj OkYk,k dh Ekks/kbz $r_1 - r_2$
- lkz2& ,d ?kRkks gq PkDds }kjk ,d PkDdj Eka Rk,k dh Xkbz njh PkDds dh f«kT,k ds CjkCkj gkRkh gA
- lkz 3& ,d OkRRkkdkj CkXkPkS dh lkjfk/k 352 EkhVj gSRkks mLdh f«kT,k 56 EkhVj gkRkhA
- lkz4& ,d OkRRkkdkj [kRk dk 0,kkLk 420 EkhVj gSRkks mLdh lkjfk/k 1200 EkhVj gkRkhA
- lkz Uk 5- ,d vk,kRk dk {k«kQYk 24 OkXz EkhVj RkFkk Pk«/kzb 4 EkhVj gSRkks mLdh ÅPkkbz 5 EkhVj gkRkh A

mÜkj & 1- LkR,k 2- vLkR,k 3- LkR,k 4- vLkR,k 5- vLkR,kA

Lkgh f«kYk dk Pk,kUk dhfTk, &

- lkz Uk 1- ,d lkfg,ks dh f«kT,k 35 LkEk- gS 400 PkDdj ds lkfg,k f«kEku njh Rk,k djXk&
v- 800 EkhVj Ck- 840 EkhVj Lk- 380 EkhVj n- 880 EkhVj
- lkz Uk 2- ,d LkEkPkRkHkqk dk {k«kQYk 1600 OkXz LkEk- gSRkks mLdh Hkqkk gkRkh&
v- 40 LkEk- Ck- 60 LkEk- Lk- 40 EkhVj n- 80 EkhVj A
- lkz Uk 3- ,d LkEkf}Ckkgq f«kHkqk dk {k«kQYk 253 OkXz EkhVj gSRkks mLdh Hkqkk gkRkh&
v- 10 EkhVj Ck- 10 LkEk- Lk- 110 EkhVj n- 1110 LkEkA

- lkz 4& LkEkkRkj Ekk/,k dh Xk.kUkk &&&&&&&&&&g&
- lkz 5& Xkhd v{kj σ $\frac{1}{2}$ LkXEkk $\frac{1}{2}$ Lks &&&& dks lknf'kRk fd,kk TkkRkk g&
mÜkj & 1- XkkV Ýk,kM , dÜkkkYk 2- nkš 3- Ekkf/,kdk 4- LkjYk 5- EkkUkd fokPKYkUk

LkR,k vLkR,k NkfV, &

- lkz 1& Ekk/,k fokPKYkUk dÜkYk LkEkkRkj Ekk/,k ds }kjk KkRk fd,kk TkkRkk g&
- lkz 2& CkgYkd KkRk djUks dh ,d fokf/k LkEkghdj.k Hkh g&
- lkz 3& fTkLk lkn dh vkokfÜk LkCkLks vf/kd gkRkh gš Ckg CkgYkd Ugha dgYkkRkk g&
- lkz 4& Ekk/,k fokPKYkUk dh Xk.kUkk Xkf.kRkh,k nf"V Lks v'kq) g&
- lkz 5& EkkUkd fokPKYkUk vU,k fokPKYkUkka dh RkqYkUk Eka vf/kd fok'OkLkUkh,k gkRkk g&
mRRkj& 1- vLkR,k] 2- LkR,k] 3- vLkR,k] 4- LkR,k] 5- LkR,k A

Lkgh fokdYik dk Pk,kUk dhfTk, &

- lkz 1& OkÜkkj s[k lkkbz vkj s[k CkUkkUks ds fyk, LkákukZ vkadMka dks fdRkUks v&k dk dks k EkkUkk TkkRkk g&
v- 45⁰ Ck- 90⁰ Lk- 180⁰ n- 360⁰
- lkz 2& Lk[,kk, i 60] 63] 44] 33] 48] 51 dh Ekkf/,kdk g&
v- 44 Ck- 33 Lk- 60 n- 51
- lkz 3& vkadMka 3] 4] 5] 3] 4] 6] 4]4 dk CkgYkd gkRkk&
v- 3 Ck- 4 Lk- 5 n- 6
- lkz 4& Lk[f [,kdh,k vkadMka dks XkkQ lkj lknf'kRk djUks dh fokf/k dgYkkRkh g&
v- vkokfÜk fPk«k Ck- vkokfÜk CkgHkqTk
Lk- fCkUnq j s[k kh,k lkn'kZk n- OkRRkkj s[k
- lkz 5& 4] 7] x] 6] 8 dk LkEkkRkj Ekk/,k 6 gS Rkks x dk EkkUk gkRkk&
v- 5] Ck- 4] Lk- 6] n- 8A
- lkz6& 50] 52] 54] 56] dk LkEkkRkj Ekk/,k fUkEuk Eka Lks g&
v- 52] Ck- 53] Lk- 54] n- 56A

Lkr,k vLkr,k NkfV, &

- Ikz 1& Xkxkj Kkuk EksMYk dks vUkqkka' kdh dk fIKRkk dgk TkkRkk g&
 - Ikz 2& ,kfn F₁ dk Lkadj.k fdLkh TkUkd Lks dj,k,kk Tkk, Rkks bLks Ckfd ØKLLk dg&
 - Ikz 3& , d gh Xkqk ds nks fOkkfjRk : Ikka dks lknf' k&k djUks OkkYks Tkhuk dks , YkhYk ,k&Ek fOkdYIk Ukgha dgRks g&
 - Ikz 4& EkkXkzk Ck d&kyk Uks fYk&stf dk XkqkLk&kh,k fLk) k&k IkfRkIkknRk Ukgha fd,kk Fkka
 - Ikz 5& dkf,kd TkUkUk OkkYks Ik&skka Eka , d Ik&Zkd Pk,kuk dk Ikz,k&k fd,kk TkkRkk g&
- mUkj &** 1- Lkr,k] 2- Lkr,k] 3- vLkr,k] 4- vLkr,k] 5- Lkr,kA

Lkgh fOkdYIk dk Pk,kuk dhfTk, &

- Ikz Uk 1- Ik&skka ds mLk Xkqk dks fTkLkds }kjk mLkdh dks' kdk fOkdfLkRk gk&j Uk,kk Ik&skk CkUkUks dh {k&Rkk j [kRkk g& dgYkkRkk g&
v- mRkfj OkRkzk] Ck- Lkadj.k] Lk- Vks/hlks/bLkh n- Pk,kuk A
 - Ikz Uk 2- fUkEu Eka Lks IkzTkUkUk dh fOkf/k Ukgha g&
v- Pk,kuk] Ck- Lkadj.k] Lk- Ckg&kf. kRkk n- LkgYkXURkk A
 - Ikz Uk 3- vUkqkka' kd Xkqkka dk& EkkRk&fIKRkk Lks Lk&kkUkka Eka XkqkLk&kh,k ds Ekk/,k&E Lks Yks TkkUks OkkYkh b&kbz g&
v- Tkhuk Ck- Øk&svuk Lk- d&æd n- dk&Z Ukgha
 - Ikz Uk 4- j k&Ek&PRk Ik&skk Rk&skkj fd,ks TkkRks g&
v- mRkfj OkRkzk Lks Ck- ÅRkd Lk&k/k&zk Lk- Lkadj.k }kjk n- Pk,kuk }kjk]
 - Ikz Uk 5- Lkadj.k dh YkhHkn,kd vfHk,kfDRk dks dgRks g&
v- fTkUks/kbIk Ck- fQUks/kbIk Lk- Lkadj v&stf n- , YkhYk A
- mUkj** 1- Lk] 2- LkgYkXURkk] 3- v] 4- Ck] 5- LkA

Lkgh TkkMh CkUkkb,k&

- | | |
|---------------------------------------|------------------------------|
| v | Ck |
| 1- f}Lkødj ØkLk | a) LkgYkXkURkk |
| 2- f}Rkh,k lkh<h Eka vIkHkkOkh | b) nks TkkMk fokIkhRk Yk{k.k |
| 3- TkhULk dk ,d LkkFk Oká kXkRk gkHkk | c) IkFkDdj .k dk fuk,kEk |
| 4- fd,TEkk | d) TkhUk fokfUEk,k |
| 5- vUkQkka' kd fokfHkUURkk | e) TkhUk mRikfj OkRkZk |

mRRkj & 1- b) 2- c) 3- a) 4- d) 5- e)

Lkgh fokdYik PkQkdj fYkf[k, &

- lkz1 fUkEuk Eka vUkQkka' kd fokfHkUURkk ds dkj .k g&
- | | |
|--|-----------------|
| v- TkhUk mRikfj OkRkZk | c- YkXkd TkUkUk |
| l - Xkq kLkækk dh Lkq ,kk Ok Lkj PKUkk Eka Ikfj OkRkZk | n- v]Ck]LkA |

mRrj & 1- n

bdkbz &08

fjDRk LFkkUkka dh lkrkz dhfTk, &

- lkz 1 dkdj kPk mnkgj .k gS Xk.k&&&&&&& dk A
- lkz 2 OkXkz bULkDvk Eka 'OkLkUk &&&&&& }kjk gkHkk g&
- lkz 3 /kkUk dh XkU/kh dhV&&&&& dks Uk"V dj nRkk g&
- lkz 4 vEk dk PkHk &&&&&& dks UkqLkkUk lkgPkkRkk g&
- lkz 5 Ek/kqkD [kh Xk.k&&&&&&& dk mnkgj .k g&
- mRRkj &** 1- vkFkkVj k] 2- Vbh] 3- Ckfyk ,kka 4- Qw'kka lkd]kØEk] 5- gk ,kEkHkKkVj kA

LkR,k vLkR,k NkfV, &

- lkz 1 EkPNj] Xkq k&fMIVj k ds v&kRkRk j [kk Xk,kk g&
- lkz 2 nhEkd] Xk.k&vkbLkKkVj k dk mnkgj .k Ukgha g&

- lkz 3 Ek/kkD [kh , d gkfkdkjd dhV g&
- lkz 4 fLkYkj fQ'k dkXkTk dks UkLkLkUk lkgPkkUks OkkYkk dhV g&
- lkz 5 dhV OkkZ ds PkhTkka Eka mRLkTkUk EkSYk?kh }kj k Uggha gkRkk g&
- mRRkj &** 1- LkR,k] 2- vLkR,k] 3- vLkR,k] 4- LkR,k] 5- vLkR,k A

Lkgh fkdYik dk Pk,kUk dhfTk, &

- lkz 1 OkkZ bULkDvK ds dhVka dk 'kj hj fdRkUks HkkXkka Eka Ck/k jgRkk g&
- v- nks HkkXkka Eka Ck- RkhUk HkkXkka Eka
- Lk- Pkkj HkkXkka Eka n- vYkXk&vYkXk dhV fhkUk fhkUk HkkXkka Eka
- lkz 2 Ykk [k dhV fUkEufYkf [kRk Xk.k dk mnkgj .k g&
- v- YkSkhMkVj k Ck- vkbLkVj k Lk- gEkhVj k n- fMIVj kA
- lkz 3 v. Ms Lks YkkOkkZ bYYkh Uggha fUkdYkRkk g\$ Okg Xkqk g&
- v- fMIVj k Ck- gkbEkhUkVj k Lk- vkFkkVj k n- YkSkhMkVj k A
- lkz 4 vEk dh dkEkYk Vgfuk,kka Ok dfYk,kka dk jLk PkLkUks OkkYkk dhV g&
- v- RkYkk] Ck- PkRkk] Lk- Hknd] n- QYkEkD [khA
- lkz 5 fUkEufYkf [kRk Eka /kkUk dk dhV Uggha g&
- v- XkZkh dhV Ck- RkUk Nnd Lk- XkZkbZ n- lkkbfjYYkk A
- mRRkj &** 1- Ck] 2- Lk] 3- Lk] 4- v] 5- n A

Lkgh Tkkmh CkUkkb,k&

- | | | | |
|----|-------------|----|-------------|
| | v | | Ck |
| 1- | fVMMk | a) | YkSkhMkVj k |
| 2- | ?kqk | b) | fMIVj k |
| 3- | j\$ kEk dhV | c) | vkFkkVj k |
| 4- | EKNj | d) | dkSYkvkVj k |
| 5- | Hkj k Ekgw | e) | /kkUk |
- mRRkj &** 1- c)] 2- d)] 3- a)] 4- b)] 5- e)

bdkbZ &09

fjDRk LFkkUkka dh IkRkZ dhFTk, &

- Ikz 1 HkkjRkh, Ek/kqkD [kh dk OkSkfUkd UkkEk &&&&&&&&&&gA
- Ikz 2 Ykk[k dhV Eka Ekknk , Oka f'k'kq &&&&&&&&dk mRlknUk djRks gA
- Ikz 3 Ekknk j'skEk dhV , d LkEk, Eka YkXkHkXk &&&&&&&&v.Ms nBkh gA
- Ikz 4 Ek/kqkD [kh ds NRRks Eka , d &&&&&&&&gkRkh gA
- Ikz 5 dhV IjkXk.k dk YkXkHkXk 70% Lks 80% &&&&&&&& }kj k gkRkk gA
- mRRkj & 1- , flkLk bM,kk] 2- Ykk[k] 3- 300 Lks 400] 4- jkUkh] 5- Ek/kqkD [kha

LkR,k vLkR,k NkfV, &

- Ikz 1& Ek/kqkD [kh ds NRRks Eka LkCkLks vf/kd Lk[,kk Ukj dh gkRkh gA
- Ikz 2& Ekknk Ykk[k dhV ds Ukkk] Vkkks RkFkk Ik[k Ukgba gkRks gA
- Ikz 3& 'kgRkRk ds j'skEk dhV dk OkSkfUkd mRlknUk CkgRk gkRkk gA
- Ikz 4& HkkjRk Eka Ykk[k dk mRlknUk CkgRk dEk gkRkk gA
- Ikz 5& JfEd Ek/kqkD [k, kka fUk"KfPRk v.Mka Lks fkdLkRk gkRkh gA
- mRRkj & 1- vLkR,k] 2- LkR,k] 3- LkR,k] 4- vLkR,k] 5- LkR,k A

Lkgh fkdYik dk Pk,kUk dhFTk, &

- Ikz 1& JfEd Ek/kqkD [kh fUkEukfYkf[kRk Eka Lks dkbZ , d dk,kz Ukgba djRkh gA&
- v- EkSkjk Ck- LkQkbZ Lk- UfLkZk n- Lkj {kk
- Ikz 2& Ykk[k dhV ds TkhOkUk PkØ Eka vOkLFkk, a gkRkh g&
- v- Pkkj] Ck- nkš Lk- RkhUk] n- IkkPkA
- Ikz 3& dkdUk dkskk dk fUkEkZk dk djRkk g&
- v- Ykk[k dhV] Ck- j'skEk dhV
- Lk- Ek/kqkD [kh] n- v , Oka Lk nktkka

Lkr,k vLkr,k NkfV, &

lkz1& Ikzk'k LkYkSk.k dks LkEkhdj.k $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + 673 \text{ fd- dS}$
 ÅTkkz }kjk lknf'krk fd,kk TkkRkk g&

lkz3& Ø&Lk PkØ Eka lkkb#fokd vEYk dk vkDLkhj.k gk&kk g&

lkz3& dIkLkLk] LkkYkSkLk.kh dYk dk lkk&kk g&

lkz4& ØLkhQjhdYk Eka QYk fLkFYkD,kvk gk&kk g&

lkz5& , fLkYkSkDvj , d jLkk,kfukd mokj d g&

mRRkj & 1- vLkr,k] 2- Lkr,k] 3- vLkr,k] 4- Lkr,k] 5- vLkr,k A

Lkgh fokdYik dk Pk&kk& dhfTk, &

iz 1& fgYk vfHkfd,kk gk&kh g&

v- 'OkLkuk Eka Ck- Ikzk'k LkYkSk.k

Lk- mRLok&Lk Eka n- fd.Ouk Eka A

lkz 2& LkCkLks vf/kd Ikzk'k dh LkYkSk.k dh fØ,kk fUkEuk LFkkuk Eka ik, tkus okys i&Lks
 ea gk&kh g&

v- EkgkLkk&Lk Eka Ck- Ukn,kka Eka

I - RkkYkCkka Eka n- LFkYk Eka

lkz3& fUkEukfYk [krk Eka Lks d&Lk Lks fØ,kk Ok,k&Lk.MYk Eka O_2 , Oka CO_2 dk Lk&YkLk Ckuk,
 j [krkh g&

v- 'OkLkuk Ck- mRLkTk&Lk I - Ikzk'k LkYkSk.k n- vOk'k&Lk.k A

lkz [kk] lknf'k& ds vkDLkhhdj.k }kjk Ek&Rk ÅTkkz Lk&Pkrk jgRkh g&

v- ADP ea Ck- NADPH ea Lk- ATP ea n- DNA Eka

lkz 5& nyiq& ØL hQk& fuEufyf[kr dks l sdy ea ik; k tkrk g&

v- EkkYkCkLk Eka Ck- nYkLk&Lk ØLkhQjh Eka

Lk- LkkYkSkLk.k Eka n- bukEka Lks d&Lk Ukgha A

mRRkj & 1& Ck] 2&v] 3&Lk] 4&Lk] 5&Ck

Lkgh TkkMh CkUkkb,ks&

- | | V | | Ck |
|----|-----------------|----|--------------------|
| 1- | ' kh' kEk | a) | EkkYkOkLkh |
| 2- | j kRkj kUkh | b) | ØLkhQj h |
| 3- | d lkkLk | c) | IkSikfyk, kksLkLkh |
| 4- | lkhYkh Lkj Lkka | d) | LkkyksLkLkh |

mRRkj & 1- c), 2- d)] 3- a)] 4- b)