

छत्तीसगढ़ माध्यमिक शिक्षा मण्डल, रायपुर



हकीरुध

दक XII ओ



izu cd

1/0 | kpr bdkb/2

NÜkhl x<+ek/; fed f'k{k e.My] jk; i j

# 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; oLrj 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 graqoLrj"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 k\$ku e.My }kjk fd; k tkosk] ftl l s izu cid vf/kd ifjiwKz vK\$ vk/k\$udre gks\$ jg\$

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

'k\$kdkeukvka l fgr---

  
1/4s feat 1/2  
vkbz, -, l -

I fpo

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

fo" k; %& Hkk\$rd 'kkL=

bdkbz & 01

fdj.k i zdk' kdh

vfr y?kqñÜkjh; izu

izu 1& I kekU; r%dkñb dk müky yñ vfHkl kjh yñ ,oadkñ dk vory yñ vil kjh yñ gkrk gSA fdu ifjLFkfr; kaeamÜky yñ vil kjh yñ dh rjg ,oavory yñ vfHkl kjh yñ dh rjg dk; Zdj\$sk \

izu 2& ,d oLrqvory yñ dsQkdI ij j[kh gSA ml dk ifrfcEc dgk; cusxk \

izu 3& fdl h yñ dh QkdI njih eaD; k ifjorü gk\$sk ; fn yky izdk'k dsLFkku ij uhyk izdk'k iz ðr fd; k tk; s \

izu 4& ,d mHk; kñkyd yñ dh QkdI njih 15 l eh gSA eç; v{k dsyEcor nkscjkcj Hkkxka dks foHkkftr dj fn; k tkrk gSA iR; d vk/ks Hkkx dh QkdI njih D; k gk\$ch \

izu 5& ,d yñ dks ikuh eaMçk; k tkrk gSA ml dh {kerk eaD; k ifjorü gk\$sk \

izu 6& uhy; yky vk\$ i hys izdk'k dsfy, dkñ ds vi orüka ðe' k%  $\mu_b, \mu_r$  vk\$  $\mu_y$  gSA blga?kVrs gq ðe eafyf[k, A

izu 7& fi ïe dh o.k&fo{ki rk {kerk fdu&fdu dkjdka ij fuHkñ djrh g\$ \

izu 8& Li DVkehvj) Li DVkskQ vk\$ Li DVkLdki eavarj crkb; sA

izu 9& f}rh; d blnzkuñk eajakadk ðe ikFkfed blnzkuñk dh rnyuk eamYVk gkrk g\$ D; ka \

izu 10-& ,d oLrqdks l jy l ðen' khZ dh l gk; rk l sigysyky izdk'k eai' pkr-c&uh izdk'k eançkk tkrk gSA fdl fLFkfr eavko/kü {kerk vf/kd gk\$ch \

izu 11& l ðen' khZ dh uyh dh yEckbz dks c<kus ij ml dh vko/kü {kerk ij D; k iHkko iMçk \

izu 12& njn' khZ ds vfHkn' ; d dsC; kl dks c<kdj ge ml ds ijkl dks c<k l drs g\$ D; ka \

y?kqñkjh; izu

izu 1& , d izdk'kiqt fclnqP ij vfhkl fjr gkrk gSA vfhkdkjh iqt dsekxZea fclnqP ea12 l eh dh njih ij , d yñ j[kk tkrk gSA iqt fdl fclnqij vfhkl kfjr gksk ;fn yñ gS%&

(i) 20 l eh Okdl njih dk mÛky yñ \

(ii) 16 l eh Okdl njih dk vory yñ \

izu 2& f<sub>1</sub> vkj f<sub>2</sub> Okdl njih ds nks mÛky yñ , d&nñ js ds l E idZeabl izdkj j[kk tkrsgfd os l ek{kh; gka A l a ðr yñ dh Okdl dsfy, l ñ Kkr dhft, A bl yñ dh {kerk D; k gksch \

izu 3& U; Vu dk l ñ D; k gS\ fyf[k, rFkk fl ) dhft, A

izu 4& vory yñ dsfy, yñ l ñ dh LFkki uk dhft, A

izu 5& vki dks Økmu dkp vkj fñyñ/ dkp dscusfofHku dks k okysfi Ñe fn; sx; sgñ A crkb; sfdlgha nks fi Ñeka dk l a kx fdl izdkj djaf d &

(i) 'or izdk'k dk fopyu gks fdUr qo.kfo{ksi .k U; ñ gks \

(ii) 'or izdk'k dk o.kfo{ksi .k gks fdUr qfopyu U; ñ gks \

izu 6& blnz/kutk D; k gS\ bl snq[kus dsfy, vko'; d ifjflFkr fyf[k, A

izu 7& 'kñ LiDVe iklr djus dh 'krñ fyf[k, A

izu 8& njn'khZ A ds vfhkn'; dk C; kl njn'khZ B ds vfhkn'; d ds C; kl dk rhu xqk gS A njn'khZ B dh rnyuk ea A }jk izdk'k dh fdruh ek=k , df=r dh tkosch \ [kxkyh; njn'khZ dh uyh dh yEckbz dk l ñ fyf[k, A

izu 9& uhps rhu yñ ka ds fooj .k fn; sx; sgñ A (i) njn'khZ vkj (ii) l a ðr l ñ en'khZ cukus dsfy, fdu nks yñ ka dk mi ; kx l okñ/kd mi ; ðr gksk %&

yñ	{kerk	}kj d
L <sub>1</sub>	6D	1 l eh
L <sub>2</sub>	3D	8 l eh
L <sub>3</sub>	10D	2 l eh

izu 10& l jy l ñ en'khZ dh vko/kñ {kerk gsrq0; at d Kkr dhft, A

nh?kznÜkjh; izu

izu 1& fdl h xksh; vory i"B dsfy, fl ) dhft, fd

$$\frac{\mu - 1}{R} = \frac{\mu}{v} - \frac{1}{u}$$

tgkj l dsrka ds l keku; vfkz g&A

izu 2& foLFkki u fof/k }kjk müky y& dh QkdI njih fdl izdkj Kkr djrs g&A vko'; d l = dh LFkki uk dhft, A bl fof/k eafLFkj fi ukadschp dh njih y& dh QkdI njih ds pl&qs l svf/kd gkrh g& D; ka \

izu 3& Li DVkehVj dh l gk; rk fi ïe ds inkFKZ dk vi or ùka Kkr djus ds iz k& dk o.kù fuEu 'kh"kdka ds v&xr dhft, %&

(i) fofHku Hkkxka ds uke , oamuds dk; ZA

(ii) iz ðr l = A

(ii) fi ïe dk dsk A , oal; ure fopyu dsk  $\delta m$  Kkr djus g&fdj.k i Fk A

izu 4& [kxksh; njih'khZ dk o.kù fuEu 'kh"kdka ds v&xr dhft, %&

(i) ukek&dr js[kk fp= A

(ii) vko/kù {kerk dsfy, 0; atd tcfv fire ifrc&c

(a) Li "V nf"V dh U; ure njih ij cusA

(b) vur ij cusA

njh'n'khZ ds vfhkn'; d dk C; kl v&/kd gkrk g& D; ka \

izu 5& l a ðr l (en'khZ dk ukek&dr js[kk fp= cukb; srFkk ml dh vko/kù {kerk ds fy, 0; atd Kkr dhft, A D; k l a ðr l (en'khZ dksmYVk djus ij og njih'n'khZ dh rjg dk; Z djsk \

&&00&&

bdkbz & 02  
rjæ iðkf'kdh

vfr y?kqñÜkjh; i zu

- izu 1& rhu ifj?kVukvka dsuke fyf[k, tks iðk'k dh rjæ i Ñfr dh if"V djrh gS\
- izu 2& ; æ dsf}fLyV iz kx eankuka fLyV I eku rjæ nð; Zds iðk'k mRI ftr djus okys nks I kSM; e y&i }kj k inhr fd; s tkrsgSA D; k 0; frdj.k ifr: i ikr gksk \ ; fn ugh rks D; ka \
- izu 3& iðk'k dsfoorü dk dkj .k D; k gS\
- izu 4& iðk'k dh , d fdj.k 1-732 viorüka okys xw/dk ij vkifrr gkrh gSA ; fn ijkofrü vkj vi ofrü fdj.k ijLij yEcor-gkarksvi ru dsk dk eku fdruk gksk \
- izu 5& /ofu rjæ s /kfor ugha gkrh] D; ka \
- izu 6& iðk'k ds ijkorü eafuEu ea l s dks I h jkf'k fu; r jgrh gS%&
- (i) pky (ii) vkofÜk (iii) rjæ nð; ZA
- izu 7& fdl h rjæ dh dyk ea D; k ifjorü gksk ; fn og &
- (i) I ?ku ek/; e dh I rg I s ijkofrü gkrh gS\
- (ii) I ?ku ek/; e ea vi ofrü gkrh gS\
- izu 8& fdl h iðkf'kd ; æ dh foHknu I hek ml dh foHknu {kerk I s fdl iðkj I EcfU/kr gS\
- izu 9& D; k I kSM; e y&i I s ikr iðk'k /kfor gkrk gS\ D; k /kq.kokksk iðk'k ds jæ ij fullkj djrk gS\

y?kqñÜkjh; i zu

- izu 1& gkboxu dk f}rh; d rjæka dk fl ) kUr fyf[k, A
- izu 2& fn[kkb; sfd 0; frdj.k ifr: i ea vf/kdre rhoark i R; sd L=kr dh rhoark dh pkj xqñh gkrh gSA tcf d nksuka L=krka ds vk; ke I eku gSA
- izu 3& I<sub>1</sub> vkj I<sub>2</sub> rhoark okys L=krka eavkusokyh rjæ s 0; frdj.k djrh gSA fdl h fclñq

ij rhork Kkr dhft, A ; fn dyklrj (i)  $\pi/2$  (i)  $\pi$  gksA

izu 4& izk'k ds /kp.k ea vki D; k l e>rs g\ /kp.k ry vksj dia ry dks fp=  
[khp dj l e>kb; sA

izu 5& dkbzi izk'k fdj.k ok; qeapydj  $\mu$  viorZkad okysek/; e ds viorb i"B ij  
/kp.k dksk  $i_p$  ij vifrr gkrh gSA fl ) dhft, fd ijkofrr vksj viorrr  
fdj.ko ijLij yEcor-gkrh gSA

izu 6& 0; frdj.k vksj fooru ea vlrrj fyf[k; sA

izu 7& ; x ds iz kx eankukafLyVka l sin dh njih 2 ehVj gSA 6000 Å rjx nS; Zdk  
izk'k mu ij vifrr gkrk gS&

(i) ; fn fYtka dh pkMkbZ2 feeh gksj rksnkukafLyVka ds chp dh njih Kkr dhft; A

(ii) ; fn vkifrr izk'k dk rjxnS; Zcnydj 4800 Å dj fn; k tkrk gS rksfYtka  
dh pkMkbZ Kkr dhft; sA

izu 8& 2 feeh vkdkj ds }kj d ij 600 uskehVj rjxnS; Zdk izk'k vkifrr gkrk gA  
og njih Kkr dhft; s tgkard izk'k dk QSyko }kj d ds vkdkj dh rnyuk ea  
ux.; gksA

nh?kz mUkjh; izu

izu 1& nks rjxka ds v/; kjksi .k l s l a ksh 0; fDrdj .k , oafouk'kh 0; fDrdj .k grq'krZ  
Kkr dhft; sA

izu 2& ; x usdyk l Ec) L=kr i klr djus dh D; k 0; oLFkk nh A 0; frrdj .k ifr: i  
eanhlr , oavnlr fYat dh pkMkbZ grq0; at d Kkr dhft; sA

izu 3& , dy fLyV }kj k fooru ifr: i eadlnh; mfPp"B dh pkMkbZ , oarhork grq  
0; at d i klr dhft; sA

&&00&&

bdkbZ & 04  
fLFkj fo | r

vfr y?kqñÜkjh; izu

- izu 1& fdl dksV dh njh dsfy; s dnyke ds0; Øe oxZ dk fu; e ykxwgrk gS\
- izu 2& fo | r {ks= dh rhor k l fn'k jkf'k gS D; ka \
- izu 3& , d vur l ery vkoš'kr pknj ds l ehi 1 l eh dh njh ij Q vkoš k F cy dk vutko djrk gSA ; fn bl h vkoš k dks2 l eh dh njh ij j [kk tk; s rks fdruscy dk vutko djsxk \
- izu 4& D; k ; g l EHko gSfd , d vkoš'kr fi .M] fdl h vukoš'kr fi .M dks vkdf"kr djsA
- izu 5& fdl h vkoš'kr pkyd ea vkoš k dcy ml ds i "B ij fLFkr gkrk gS D; ka \
- izu 6& ijkoš | r ka d "K" dsfy, foeh; l = , oa, l -vkbZ ek=d fyf[k; sA
- izu 7& , d dnyke fo | r vkoš k eafdrus byDVkuka dh vf/kdrk ; k deh gS\
- izu 8& i Ñfr eank l j {kh cyks ds mnkgj .k nhft ; sA
- izu 9& oš | r f } / k p fdl sdgrsgS\
- izu 10& oš | r f } / k p vk?kukZ dk , l -vkbZ ek=d fyf[k; sA
- izu 11& fdl h /kkrdscus [kks[kya xfgdk ds Hkrj cBs0; fDr dks fo | r dk >Vdk ugha yxrk] ; fn xfgdk dks mPp foHko ds L=kr l s tkMk tk; sA

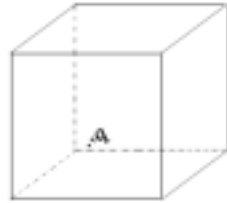
y?kqñÜkjh; izu

- izu 1& fo | r cy j s [kkvka ds xqk ds vk/kkj ij] nks l eku i Ñfr ds vkoš kka ds chp yxus okys i frd"kz k cy dh 0; k [ ; k dhft ; sA
- izu 2& nks vkoš kka ds e/; fuokr ea yxus okyk cy 100N gSA ; fn nksuks vkoš kka ds e/; fuokr ds LFku ij dkbZ ijkoš | r ek/; e (K=80) j [kk tk; s rks muds e/; yxus okys cy dh x.kuk dhft ; sA
- izu 3& , d oš | r f } / k p (q, 21) , d l eku fo | r {ks= [E] ea fo | r {ks= dh fn'kk l s  $\theta_1$  dksk ij fLFkr gSA bl s {ks= dh fn'kk l s  $\theta_2$  dksk rd ?kpkus eafd; s x; s dk; Z dh x.kuk dhft ; sA



izu 4& fdl h can l rg dsckgj vkošk q fLFkr gSA can l rg l sl æf/kr fo | r qlyDI dh x.kuk dhft; sA

izu 5& fn; sx; s?kukHk dsfdl h , d i "B l sl æf/kr fo | r qlyDI dk eku Kkr dhft; A



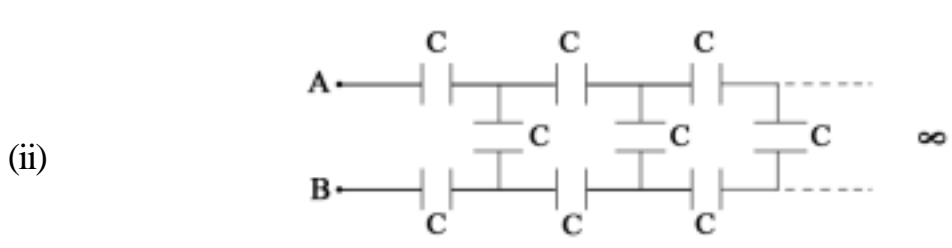
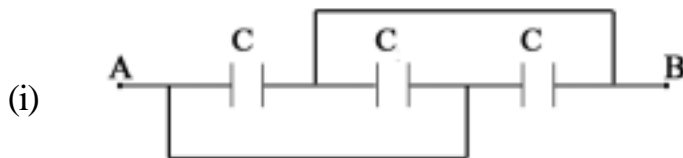
izu 6& , d l eku fo | r {ks= ea, d f}/kq ij yxusokyscy; ðe ds vk?kwkZ ds fy; s 0; atd Kkr dhft; sA

izu 7& q vkošk dks v okyV dsfoHkokuRj eaRofjr djus ij vkošk }kjk i klr xfrrt ÅtkZ dk eku Kkr dhft; sA

izu 8& nks vkošk ka dse/; yxusokys fo | r cy grq dnyke dsfu; e dh 0; ði fÜk xkl i zş dh l gk; rk l s dhft; sA

izu 9& 5<sub>µf</sub> vkş 10<sub>µf</sub> okys l ðkkfj = ka l s 25<sub>µf</sub> rFkk 12.5<sub>µf</sub> /kkfjrk i klr djus grqbllga fdl izkj l a kfr djksx sA

izu 10& l ðkkfj rks dsfuEu l a kstu ea A rFkk B dse/; r q; /kkfjrk Kkr dhft; s &



izu 11& vkošk' kr l ðkkfj = dh lys/ka ds chp njih dks c<kus ij

(i) ml ds lys/ka dse/; foHkokuRj rFkk

(ii) ml dh /kkfjrk ij D; k i Hkko i Mæck A

izu 12& l efoHko i "B geşkk fo | r i "B ds yEcor~gkşrk gş D; ka \

izu 13& , d byDVku dks , d i kS/ku ds pkjka vkj , d cm oØ ea?mekus eafd; k x; k dk; Z'ktl; D; ka gsrk gS\

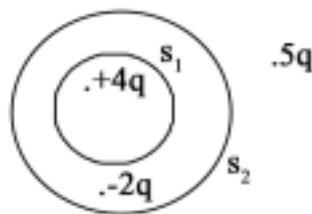
izu 14& fLFkj fo|qr {ks= eafdI fn'kk eafo|qr foHko dk eku de gsrk gSA

izu 15& , d ?ku ds djkjkaea+q vkoSk fLFkr gS bl ds dlnzeady fo|qr foHko , oarhork dh x.kuk dhft; sA

izu 16& D; k fdl h I dkkfj= dks fdruh Hkh ek=k ea vkoSk fn; k tk I drk gS\ vius mUkj dk dkj.k fnft; sA

izu 17& fo|qr qlyDI I adkh xkll ias dk egRo crkb; sA

izu 18& fuEu fp= eacn I rg s<sub>2</sub> I sl adkh qlyDI dk eku crkb; sA



izu 19& fdl h I dkkfj= dh lys/ka dse/; ijkoS|qr dk , d xw/dk j[k nuss ij ml dh /kkfjrk c<+ tkrh gSA D; ka \

izu 20& I eku f=T; k ds rks ds nks xksyka ea , d Bkd rFkk , d [kks[kyk gSA nksuka dks I eku foHko rd vkoSk'kr fd; k tkrk gSA nksuka ea I sfdl ea vkoSk dk eku vf/kd gksk A

nh?kz mUkj; izu

izu 1& os|qr f}/kp eanuksa vkoSk ka dks feykusokyh js[kk ij fLFkr fdl h fclnqij fo|qr {ks= dh rhork gsrq0; atd Kkr dhft; sA

izu 2& os|qr f}/kp ds nksuka vkoSk ka I s I eku njih ij fLFkr fdl h fclnqij fo|qr {ks= dh rhork gsrq0; atd Kkr dhft; sA

izu 3& xkl ias dh I gk; rk I sfdl h xksh; pkyd ds I ehi fLFkr fdl h fclnqij fo|qr {ks= dh rhork gsrq0; atd Kkr dhft; sA

izu 4& I ekUrj lys/ I dkkfj= ea lys/ks dk {ks=Qy A mudschp dh njih d rFkk lys/ks dschp ek/; e dk ijkoS|qr ka d k gks rks I ekUrj lys/ I dkkfj= dh /kkfjrk Kkr dhft; sA

izu 5& nks vkoSk'kr pkydka dks tkMuis ij fo|qr Atkz ea gksus okyh gkfu gsrq0; atd Kkr dhft; sA

&&00&&  
bdkbz & 05  
/kkjk fo | r

vfr y?kqmÜkjh; izu

- izu 1& fo | r /kkjk dh eki fdu nksHkk&rd jkf'k; ka ds vuq kr ds: i eadh tkrh gS\
- izu 2& /kkjk ?kuRo dks ifjHkkf"kr dhft; sA
- izu 3& ,Eih; j@ehVj<sup>2</sup> fdl Hkk&rd jkf'k dk ek=d gS\
- izu 4& /kkRoh; pkyd dsfy; s/kkjk vkj foHkkokUrj ds e/; xkQ [khrp; aA
- izu 5& vke dk fu; e fdu ifjLFkfr; ka ea ykxw ugha gkrk \
- izu 6& v) pkyd ds ifrjkskdrk ij rki dk iHkko fdl izdkj iM&k gS\
- izu 7& ifrjksk rkj cukus grqfdl h inkFkZ ea D; k xqk gkus pkfg; s \ ½dkbz nkš
- izu 8& fdl h l sy dk vkrfjd ifrjksk D; k gS\ bl s ifjHkkf"kr dhft; sA
- izu 9& 0ghVLVksu ½czt½ l r q ds fl ) kar ij vk/kkfjr nks mi dj .kka ds uke fyf[k; sA
- izu 10& ÅtkZ l j {k.k ds fu; e ij vk/kkfjr fdjpkQ ds fu; e dks fyf[k; s ftl dk mi ; ksx tfVy fo | r ifjiFkka dks gy djus grqfd; k tkrk gSA
- izu 11& foHkkoeki h ds nks mi ; ksx fyf[k; sA
- izu 12& foHkkoeki h ds rkj dh yEckbz c<kus ij mi dj .k dh l qkfgkrk ij D; k iHkko iM&k \

y?kqmÜkjh; izu

- izu 1& vuq&eu ox dks l e>krsqq s vke ds fu; e dh 0; q i fÜk dhft; sA
- izu 2& /kkfRod pkyd] feJ/kkrq , oa fo | r vi?kV; dk ifrjksk rki l s fdl izdkj iHkkfor gkrh gS\
- izu 3& R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> ifrjksk okys rkjka dks l ekUrj Øe ea tkMk x; k gSA bl l q kstu ds r q; ifrjksk grq0; atd Kkr dhft; sA
- izu 4& 8Ω ds ifrjkskka l sfuEu eku ds ifrjksk fdl izdkj ikr dj l drsg&\
  - (i) 12Ω                      (ii) 4Ω                      (iii) 20Ω

izu 5& fdjpkQ dk fu; e fyf[k; sA

izu 6& OghVLVksu ½ I s qfdl s dgrs gS \ bl ds I rgyu gsrq vko'; d 'krZ Kkr dhft; sA

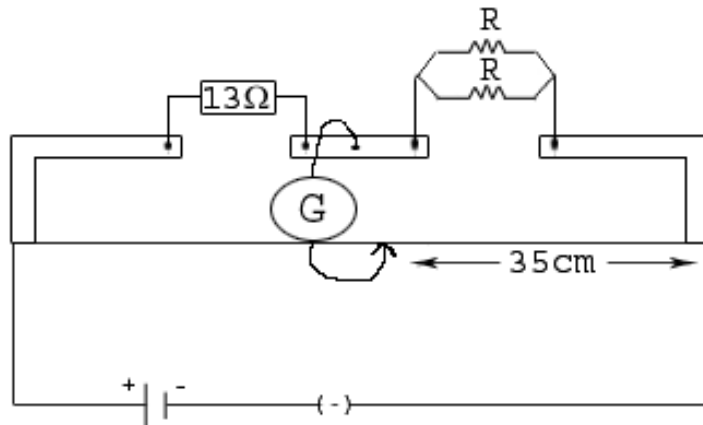
izu 8& tfVy fo | r ifji Fk gsrq fdjpkQ dk fu; e Hkksrdh ds fdu eny fu; eka ij vk/kkfjr gS mu fu; eka dks fyf[k; sA

izu 9& I sy ds fo | r okgd cy (E) vkarfjd ifrjksk (r) vkSj okg; ifrjksk (R) ea I cZk LFkkr dhft; sA

izu 10& ehVj ½ I s q r Fk foHkoeki h ds iz, kx ea tKkdh dks rkj ij jxMoj ugha pykuk pkfg; sA D; ka \

izu 11& eki u ea 'k) rk dh n"V I s foHkoeki h] okVehVj I s JSB gS D; ka \

izu 12&



I rgyu ifji Fk ea I s qrdh I rgyu fLFkr dks n'kkZ k x; k gSA R dk eku Kkr dhft; sA

nh?kz mUkjh; izu

izu 1& ehVj ½ I s qrdh I gk; rk I sfdl h pkyd rkj dsfof'k"V ifrjksk Kkr djus gsrq iz, kx dk o.kZ fuEu fclnq/ka ea dhft; s &

- (i) fo | r ifji Fk ukekdr fp=
- (ii) vko'; d I = dh LFkkr uk
- (iii) nks egRo i wkZ I ko/kkfu; ka A

izu 2& foHkoeki h dh I gk; rk I s I syka ds fo | r okgd cyka dh rgyuk djus gsrq iz, kx dk o.kZ fuEu fclnq/ka ea dhft; s &

- (i) ifjiFk dk ukekfidr fp=
- (ii) vko' ; d l w dh LFkki uk
- (iii) i xk.k l kj .kh
- (iv) nks egRoi wkZ l ko/kkfu; kaftuds cx\$ iz; ksx l lko ughagSA

izu 3& foHkoeki h dh l gk; rk l sfdl h i kFkfed l y dk vkarfjd i frjksk Kkr djusds iz; ksx dk o.kZ fuEu fclUnq/ka ea dhft; sA

- (i) fo | r ifjiFk dk ukekfidr js[kk fp=
- (ii) vko' ; d l w dh LFkki uk
- (iii) i xk.k l kj .kh
- (iv) nks egRoi wkZ l ko/kkfu; ka

&&00&&

bdkbz & 08  
byDVtu , oa Qks/ku

vfr y?kqñÜkjh; izu

- izu 1& byDVtu dk fof'k"V vkošk fdl s dgrsgđ\
- izu 2& byDVtu dsfof'k"V vkošk Kkr djusdh tsts Fkkel u fof/k eafo | q {ks= , oa pñcdh; {ks= dh fn'kk fdl izdkj gkrh gđ\
- izu 3& byDVtu&okšV fdl dh bdkbz gđ\
- izu 4& byDVtu&okšV dks i fjHkkf"kr dhft; sA
- izu 5& D; k l Hkh Qks/kuka dk nđ; eku l eku gkrk gđ\ ; fn ugha rks D; ka\
- izu 6& fujkskh foHko dk eku D; k vifrr izk'k dh vkofÜk rFkk rhork ij fuHkj djrk gđ\
- izu 7& ijkcšuh] gjk] yky rFkk vojDr fofdj .kka ea dks izk'k fo | q i Hkko dsfy; s vf/kd i Hkkoh gđ\
- izu 8& izk'k byDVtu dh vf/kdre xfr fdl ij fuHkj djrh gđ\
- izu 9& D; k vkifrr iR; d Qks/ku vko' ; d : i l s , d byDVtu dksmRI ftz djrk gđ\
- izu 11& , d Qks/ku vksj , d byDVtu l sl añ/kr rjæ nđ; Zl eku gđ bueal sfdl dh pky vf/kd gksxh \
- izu 12& izk'k fo | q mRI tzu dsfy; s {kkjh; /kkrqvf/kd mi ; qñr gkrk gđA D; ka\
- izu 13& vkbaVhu us izk'k fo | q i Hkko dh 0; k[; k dsfy; slyka dsfdl fl ) kar dks vk/kkj cuk; k A
- izu 14& byDVtu dsfof'k"V vkošk Kkr djusdh Fkkel u fof/k ea
  - (i) fo | q {ks= dh rhork (E) vksj pñcdh; {ks= dh rhork (B) rFkk (ii) byDVtu dsosx (v) rFkk pñcdh; {ks= dh rhork (B) dse/; dks k D; k gkrk gđ\

y?kqñÜkjh; izu

- izu 1& tsts Fkkel u fof/k l sbyDVtu dsfof'k"V vkošk Kkr djusgrql ð dh LFkki uk dhft; sA

- izu 2& byDVtu dsfof'k"V vkošk Kkr djusdh tst-sFkkeI u fof/k eafI ) dhft; sfd  
byDVtu i nt ds vfo{ki dh fLFkr ea byDVtu dh pky fo | r {ks= dh rhork  
vkj pfc dh; {ks= dh rhork ds vuq kr ds cjkj gsrk gSA
- izu 3& izk'k fo | r i Hkko dh 0; k[; k ea rjæ fl ) kr dh vl Qyrk dks fyf[k; sA
- izu 4& izk'k fo | r i Hkko I ækh ysukMZ ds iz, ks ds fu"d"kkz dks fyf[k; sA
- izu 6& vkbaVhu us izk'k fo | r i Hkko dh 0; k[; k fdI izkj dh] bl gsrq vkbaVhu  
I ehdj.k dh Lfki uk dhft; sA
- izu 7& yb&Mh&ctXyh ds ml Økrdkjh ifjdyi uk dks fyf[k; s ftI ds vk/kkj ij  
ml usnð; rjækaI sl æf/kr I ehdj.k fn; k A
- izu 8& izk'k fo | r I sy D; k gS\ bl dk fp= cukdj I j puk , oadk; Zfof/k crkb; sA
- izu 9& cx I ehdj.k D; k gS\
- izu 10& Mfol u tej fof/k dk egRo crkb; sA
- izu 11& izk'k fo | r i Hkko I ækh ysukMZ ds iz, ks ea l rlr /kkjk , oafujkskh foHko dks  
Li"V dhft; sA

nh?kz mUkj; izu

- izu 1& , d byDVtu dks v okV foHkokUrj eaRofjr djusij byDVtu I sl æk rjæ  
nð; Z dh x.kuk dhft; sA
- izu 2& Mfol u tej fof/k dk I fp= o.ku dhft; sA

&&00&&

## bdkbz & 09

Bkd , oa v) þkyd ; fjDr; ka

vfr y?kqñÜkjh; izu

izu 1& Åtkz cSM l svki D; k l e>rs gð\

izu 2& v) þkyd fdl s dgrsgð\ ; g fdrus izdkj dk gkrk gð\

izu 3& fut v/lþkyd , oa okg; v/lþkyd dks ifjHkkf"kr dhft; sA

izu 4& rki c<kus ij v/lþkyd inkFkkð dh pkydrk c<+tkrh gð D; ka\

izu 5& Mkfi æ fdl s dgrsgð\ ; g D; ka vko' ; d gð\

izu 6& fut v/lþkyd dks P izdkj ds v/lþkyd eafdl izdkj ijkofnr fd; k tk l drk gð\

izu 7& okg; v/lþkyd dks n izdkj ds v/lþkyd eafdl izdkj ifjofnr fd; k tk l drk gð\

izu 8& p-n l á/k Mk; kM fdl s dgrsgð\ bl dk l kðfrd fp= cukb; sA

izu 9& p-n l á/k Mk; kM dk vxz vfHkufR rFkk i'p vfHkufR eafdl izdkj l sl a kstu fd; k tkrk gðA

izu 10& VñtLVj fdl s dgrsgð\ ; g fdrus izdkj dk gkrk gð\

izu 11& P-N-P VñtLVj dh vi\$kk N-P-N VñtLVj vf/kd JSB gkrk gð D; ka\

izu 12& VñtLVj ds fuoð kh ifrjks'k rFkk fuxr ifrjks'k dks ifjHkkf"kr dhft; sA

izu 13& VñtLVj eamRI tð geðkk vxz vfHkur rFkk l ætgd geðkk mRØe vfHkufR ea gkrk gð D; ka\

izu 14& Vñd Qkej rFkk ið/kðd eaD; k varj gð\

izu 15& VñtLVj eamRI tð rFkk l ætgd dh rgyuk eavk/kkj dks cgr i ryk cuk; k trk gð D; ka\

izu 16& mHk; fu"B mRI tð iðZkd] mHk; fu"B vk/kkj iðZkd l s vf/kd JSB gkrk gð D; ka\

izu 17& xkgh v/lþkyd rFkk nkrk v/lþkyd fdl s dgrsgð\

izu 18& ykñtð xð/ð fdl s dgrsgð\ bl dk mi ; kx dgl; fd; k tkrk gð\



izu 19&



mi jkDr fp= fdl ykftd x\ dk g\ bl dk cfry; u 0; atd fyf[k; sA

izu 20&

$\overline{AB}=Y$  mi jkDr cfry; u 0; atd fdl ykftd x\ dk gSA bl dk l kdrd fp= cukb; sA

izu 21&

fl ) dhft; s  $A + \overline{A} = 1$

izu 22&

fl ) dhft; s  $A \cdot \overline{A} = 0$

izu 23&

I.C. fdl sdgrsg\ bl dh nks fo' kskrk; a fyf[k; sA

izu 24&

tc , d VktLVj iD/kZd mHk; fu"B vk/kkj ifjiFk eaiz Dr fd; k tkrk gS rks /kjk iDZku 0-987 gSA ; fn ml smHk; fu"V mRI tD ifjiFk eaiz Dr fd; k tkoj rc /kkjk ioZku D; k gksk \

izu 25&

v/kpkyd ; Dr; ka ds nks nksk fyf[k; sA

y?kqUkjh; izu

izu 1&

p idkj rFkk n idkj ds v/kpkydka earhu varj fyf[k; sA

izu 2&

fut v/kpkyd rFkk okg; v/kpkyd earhu varj fyf[k; sA

izu 3&

p-n l f/k Mk; kM dh vxz vfhkuf r dks l e>kb; sA Mk; kM fdl idkj l pkyd dh Hkkar dk; Zdjrk gS\

izu 4&

p-n l f/k Mk; kM dh i'p vfhkuf r dks l e>kb; sA Mk; kM fdl idkj dpkyd dh Hkkar dk; Zdjrk gSA

izu 5&

fn"Vdj.k fdl sdgrsg\ p-n l f/k Mk; kM dk v/kZ rjx fn"Vdkjh ds: i ea mi ; ksx l e>kb; sA

izu 6&

N-P-N VktLVj dh dk; Zfof/k l e>kb; sA

izu 7&


fo | r vkjs[k [khp dj P-N-P VktLVj dh dk; Zfof/k l e>kb; sA


izu 8&

VktLVj ds  $\alpha$  rFkk  $\beta$  ijkehVj D; k gS\ muea l Ecu/k LFkfi r dhft; sA

izu 9&

v/kpkyd ; Dr; ka ds xqk rFkk nksk fyf[k; sA

izu 10&  ; g fdl yklt d xš/ dk I kofrd fplg gS A bl dk cfr; u 0; at d fy[kdj I R; I kfj.kh cukb; sA

izu 11&  ; g fdl yklt d xš/ dk I kofrd fplg gS A bl dk cfr; u 0; at d fy[kdj I R; I kfj.kh cukb; sA

izu 12& Mh ekxū iēs fyf[k; s rFkk fl ) dhft; sA

izu 13& , d VktLVj idZkd ea  $\beta = 62, R_L = 5000$  vke rFkk  $R_i = 500$  vke gSA okVst id/kū rFkk 'kDr id/kū Kkr dhft; sA

izu 14& mHk; fu"V vk/kkj ifjiFk ea/kkj id/kū 0-95 gSA ; fn mRI tD /kkjk dk eku 0-9mA gkš rks vk/kkj /kkjk dk eku Kkr dhft; sA

### y?kqūkj; izu

izu 1& fn"Vdj.k fdl sdgrsgā\ fo|q vkjšk I hpdj p-n I ā/k Mk; kM dk iwZrjā fn"Vdkjh ds: i ea f0; k fof/k I e>kb; sA

izu 2& VktLVj ds vfhkyk{kf.kd o0 fdl sdgrsgā\ fo|q vkjšk [khpdj VktLVj ds fuošk rFkk fuxZ vfhkyk{kf.kd o0ka dh I ā/klr 0; k[; k dhft; sA

izu 3& id/kD fdl sdgrsgā\ P-N-P VktLVj dk vHk; fu"B mRI tD fo/kk eafo|q ifjiFk [khpdj id/kD ds: i ea dk; Zfof/k I e>kb; sA

izu 4& id/kD fdl sdgrsgā\ N-P-N VktLVj dk vHk; fu"B mRI tD fo/kk eafo|q ifjiFk [khpdj id/kD ds: i ea dk; Zfof/k I e>kb; sA

izu 5& nkfy= dks ifjHkkf"kr dhft; sA N-P-N VktLVj dk nkfy= dh Hkkār fo|q vkjšk [khpdj dk; Zfof/k I e>kb; sA nkfy= dk mi ; ksx dgk; fd; k tkrk gā

izu 6& I koF=d xš/ fdl s dgrs gā \ NAND GATE I s OR GATE rFkk NOR GATE I s AND GATE iklr djus dk fo|q vkjšk [khp; sA

izu 7& I.C. fdl sdgrsgā\ bl sfdl idkj cukrsgā\ ; g fdrus idkj dh gkrh gā I.C. dh fo'kškrk; a , oa I.C. dh I hek; a fyf[k; sA

&&00&&

bdkbz & 10  
I pkj ds fl ) klr

vfr y?kqñÜkj h; izu

- izu 1& plnæk i Foh dk mi xg gS rksD; k bl dk mi ; kx I pkj mi xg ds: i eafd; k tk I drk gS\
- izu 2& ijkcXuh fofdj.k nsus okys yEi ka ds cYc dkp ds LFkku ij DokVZt ds cuk; s tkrs g\$ D; ka \
- izu 3& yEch njh ds jSM; ks i l kj.k ea y?kq rjæ cSM dk mi ; kx fd; k tkrk g\$ D; ka
- izu 4& I kekl; izdk'k vk\$ "LASER" eaD; k vlurj gS\
- izu 5& nj I pkj ea dks I h rjæ s iz ðr gkrh gS\ bl dk rjæ n\$; Zijkl fyf[k; sA
- izu 6& , d vko\$ k 10<sup>4</sup> dEi u@I d.M dh vkofÜk dks nkyk; eku gSA bl eamRi l u fo | r pñcdh; rjæ ka dk rjæ n\$; ZKkr dhft; sA
- izu 7& okgd rjæ ka ds fy; s mPp vkofÜk dh rjæ s mi ; kx ea yk; h tkrh g\$ D; ka \
- izu 8& VR&Mw I j D; k gS\ bl ds dkbZ nks mnkgj .k fyf[k; sA
- izu 9& ; fn ekMfir fl xuy dks I h/ks gM Qks I svflkxg.k fd; k tk; s rksD; k gksk\
- izu 10& I cl svf/kd mi ; kx ea vkus okyh f}rkj ykbu dk uke fyf[k; sA
- izu 11& blVjuv/ dk f'k{k ds {k= ea dkbZ nks mi ; kx fyf[k; sA
- izu 12& "SIM" Card ea SIM 'kCh dk foLrkj fyf[k; sA
- izu 13& ed j vk\$ yd j ea nks vlurj fyf[k; sA
- izu 14& i Foh ds ok; e.My ea vkstks i rZfdI Hkx ea vk\$ yxHkx fdruh Åpkbz ij flFkr gS\

y?kqñÜkj h; izu

- izu 1& fo | r pñcdh; rjæ ka ds fuEu izdkj ka ds nks nks xqk , oank&nks mi ; kx fyf[k; &  
(i) ijkcXuh fdj.k (ii) n'; izdk'k (iii) I (e rjæ
- izu 2& , ukykx fl xuy dh rgyuk ea fMftVy I pkj fdI izdkj JSB gS\

- izu 3& /ofu fl Xuy dksnj rd i f"kr ughafd; k tk l drk g\$ D; ka \
- izu 4& , d l kek{kh; dcy , d gh l e; eadbZVsyhQksu dkyka dks , d l kfk d\$ sys  
tkrk g\$ \ l e>kb; sA
- izu 5& iYl ekMyu D; k g\$ \ PAM vks PDM eafp= [khpdj vUvj Li "V dhft; A
- izu 6& Lor%mRI tZu ,oamnahlr mRI tZu ea vUvj fyf[k; sA
- izu 7& izk'k ekMyu D; k g\$ \ bl dsfl )kr fyf[k; sA
- izu 8& blVjuv/ ikjEHk djusdsfy; sU; ure l kefxz ka dksfyf[k; s , oa i R; d dsdk; Z  
fyf[k; sA
- izu 9& izkf'kd rUrqdsrhu ipfyr izkjkadksfyf[k; sA
- izu 10& izk'k fl Xuy l d p d D; k g\$ \ izk'k fl Xuy dks l d fpr djusgrqfdl  
midj.k fd; k tkrk g\$ \
- izu 11& i R; kortz/kkj dk Rokfpd i Hkko (Skin effect) D; k g\$ \ bl sde djusdsmik;  
fyf[k; sA
- izu 13& ekMe D; k g\$ \ bl dh dk; Z izkkyh Cykd vkjs[k cukdj l e>kb; sA

## nh?kz mUkjh; izu

- izu 1& f}rkj ykbu l pkj dsfofHkUu izkjkadksml dsxqk ,oankSk dkscrkrs l f{klr  
: i ea0; k[; k dhft; sA
- izu 2& ok; e. My dsfofHkUu irkz dksmudsHkkfRrd xqk dsvk/kkj ij fyf[k; sA i R; d  
dk fo | r p{cdh; rjaka ds i fr 0; ogkj dksLi "V dhft; sA
- izu 3& LED D; k g\$ \ bl dh dk; Z izkkyh dksfyf[k; sA bl dk mi; kx fdl izkj  
l pkj ra= ea izk'k L=kr fl Xuy ds: i eafd; k tk l drk g\$ \
- izu 4& ys j dk dk; Z fl )kr fp= l fgr l e>kb; sA
- izu 5& es j (MASER) dk o.kZu fuEu fclUnq/ka ea dhft; s &
- (i) dk; Z (ii) fl )kr (iii) nks mi; kx A
- izu 6& QDI D; k g\$ \ bl dh dk; Z izkkyh Cykd vkjs[k cukdj l e>kb; sA

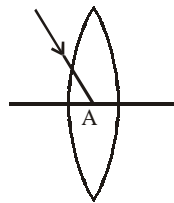
&&00&&

# bdkbz & 01

## fdj . k lkzdkf' kdj

### vfRk Yk?kqRRkj h, k lkz Uk

- 1- IkhYks vkj UkhYks jxk Eka Lks fdLk jxk dk vYIKRkEk fOkPYkUK dks k dk Ekkuk vf/kdRkEk gkRkk g\$ vkj D, kka
- 2- fikzEk ds lknkFkz dk vIkOkRkZkka fdLk jxk ds fYk, vf/kdRkEk , OkafLk jxk ds fYk, U, kOkRkEk gkRkk g\$ vkj D, kka
- 3- 'OkRk lkzdk' k dk LkElkwz Ok. kZfOk{kdk. k fdLks dgRks g\$
- 4- PkUaeEkk Lks ns[ks TkkUks lkj vkdk' k dkYkk fn[kkbz nRkk g\$
- 5- , kfn dkbz lkzdk' k dh fdj . k Ek[ , k v{k ds LkEkkukRkj mRRkYkYkLk lkj vkikfRkRk gks jghg\$ Rkks YkLk Lks VdjUks ds Ckn dgk; lkj Tkkdj fEYkRkh g\$
- 6- fn, ks Xk, ks vkjs[ k Eka , d lRkYks YkLk Eka , kfn dkbz lkzdk' k dh fdj . k YkLk ds daæ Lks gkdj Xkq'kjRkh g\$ Rkks fdj . k vkjs[ k lFk dks lkwz dhfTk, A

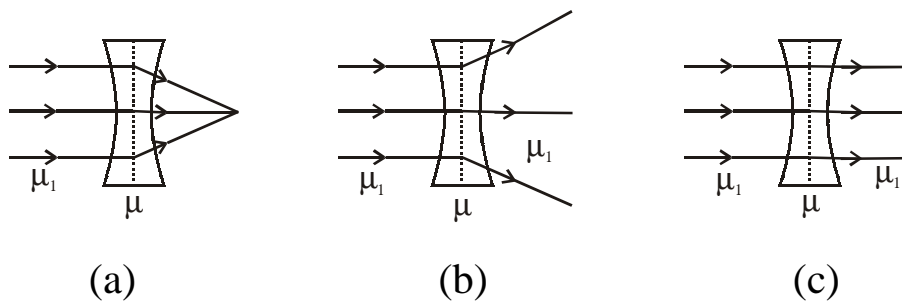


- 7- YkLkka dh lkgPkuk vkik fdLk Rkjg dj LkdRks g\$
- 8- fdLk lkzdk ds YkLk dk mlk, kkkk dgk; dgk; fd, kk TkkRkk g\$ %dkbz nks mlk, kkkk fYkf[ k, 1/2
- 9- XkksYkh, k nIz k Eka dRkYk , d QkdLk fCkq gkRkk g\$ lkj Rkq YkLk Eka nks A D, kka
- 10- fOkLFkkIkuk fOkf/k ds lk, kkkk Eka nks fIkukka ds CkPk dh njih dks YkLk dh QkdLk njih ds Pkkj Xkqks Lks vf/kd njih lkj j [kk TkkRkk g\$ D, kka
- 11- , d vdYks YkLk dk v{kh, k Ok. kZ fOkIkFkuk dk Ekkuk ' kL, k Ugha gks LkdRkk D, kka
- 12- vf/kd QkdLk & njih OkYks YkLk dk mlk, kkkk XkksYkh, k fOkIkFkuk dks dEk djUks ds fYk, fd, kk TkkRkk g\$ D, kka

- 13-  $\nu$ ORRYK Yk<sub>l</sub>k Eka j<sub>s</sub>[kd  $\nu$ OK/k<sub>l</sub> gEks'kk , d Lks dEk gk<sub>l</sub>kk g<sub>s</sub> D<sub>s</sub>kka fYkf[k, \
- 14- Ik<sub>l</sub>fFk<sub>l</sub> njn'khZ dh  $\nu$ OK/k<sub>l</sub> {kEK<sub>l</sub>Rk<sub>l</sub> Ck<kUks ds dkbZ nks mlk<sub>s</sub>k fYkf[k, \
- 15- LkEk<sub>l</sub>K<sub>l</sub> QkdLk&njh OkkYks mRRkYk Yk<sub>l</sub>k  $\nu$ s<sub>s</sub>  $\nu$ ORRYK Yk<sub>l</sub>k dks LkEIk<sub>l</sub>dZ Eka j [kk Tk<sub>s</sub>,ks Rkks mLkd<sub>l</sub> Ikfj.kkEk D<sub>s</sub>kk Ik<sub>l</sub>TRk gk<sub>l</sub>kk\
- 16- D<sub>s</sub>kk dkj.k g<sub>s</sub> fd Ck<sub>l</sub>LK<sub>l</sub>K<sub>l</sub> Ck<sub>l</sub>U<sub>l</sub> dh /k<sub>l</sub>fEKYkh TokkYkk Lk<sub>l</sub>Rk<sub>l</sub> Lk<sub>l</sub>D<sub>l</sub>VEk n<sub>l</sub>Rkh g<sub>s</sub> Ik<sub>l</sub>j<sub>l</sub>Rk<sub>l</sub> UkhYkh TokkYkk Ck<sub>l</sub>S<sub>l</sub>M Lk<sub>l</sub>D<sub>l</sub>VEk n<sub>l</sub>Rkh g<sub>s</sub>

**Yk?k<sub>l</sub>mRRkjh<sub>s</sub>k Ikz Uk**

- 17- Ik<sub>l</sub>zk'k dk Rk<sub>l</sub>j<sub>l</sub>nk n<sub>s</sub>,kz Ck<kUks Ik<sub>j</sub> U<sub>s</sub>k<sub>l</sub>RRkEk fOkPYk<sub>l</sub>K<sub>l</sub> dks k fdLk Ik<sub>l</sub>zk<sub>j</sub> Ik<sub>l</sub>kkfOk<sub>l</sub>Rk gk<sub>l</sub>kk g<sub>s</sub> Ok.k<sub>l</sub> dhfTk, \
- 18- fikzEk ds lknkFkz dk  $\nu$ lOk<sub>l</sub>Rk<sub>l</sub>Uk<sub>l</sub>kd 1-5 g<sub>s</sub> ,fn Okg Ik<sub>l</sub>zk'k dh fdj.kka dks 6-5 ds dks k Lks fOkP<sub>l</sub>fYk<sub>l</sub>Rk djRk<sub>l</sub> g<sub>s</sub> Rkks fikzEk dk dks k K<sub>l</sub>Rk dhfTk, \
- 19- 20D , Oka & 5D {kEK<sub>l</sub>Rk<sub>l</sub> ds nks Yk<sub>l</sub>k LkEIk<sub>l</sub>dZ Eka j [ks Xk<sub>s</sub>,ks g<sub>s</sub> ,k<sub>l</sub>Ek dh QkdLk njh K<sub>l</sub>Rk dhfTk, \
- 20- Lk<sub>l</sub>D<sub>l</sub>VEk<sub>l</sub>khV<sub>j</sub> ds Ik<sub>l</sub>zk<sub>l</sub>kk Eka fikzEk Ek<sub>l</sub>pk dk LkEk<sub>s</sub>kk<sub>l</sub>T<sub>l</sub>K<sub>l</sub>Uk d<sub>s</sub>ks fd<sub>s</sub>kk Tk<sub>l</sub>Rk<sub>l</sub> g<sub>s</sub> Ok.k<sub>l</sub> dhfTk, \
- 21- Tk<sub>l</sub>Ck Lk<sub>l</sub>Ykz Ik<sub>l</sub>zk'k fikzEk Ik<sub>j</sub>  $\nu$ lOk<sub>l</sub>fRk<sub>l</sub>Rk gk<sub>l</sub>kk g<sub>s</sub> Rkks Okg Yk<sub>l</sub>Yk j<sub>l</sub>kkka Eka fOkHk<sub>l</sub>D<sub>l</sub>Rk g<sub>l</sub>s Tk<sub>l</sub>Rk<sub>l</sub> g<sub>s</sub> D<sub>s</sub>kk<sub>l</sub>
- 22- j<sub>s</sub>Yks dk Ik<sub>l</sub>dh.k<sub>l</sub>kk fuk<sub>s</sub>kek fYkf[k, A , d mnkgj.k nhfTk, \
- 23- ,fn fdLk Yk<sub>l</sub>k ds lknkFkz dk  $\nu$ lOk<sub>l</sub>Rk<sub>l</sub>Uk<sub>l</sub>kd 1-5 g<sub>s</sub> Rkks mH<sub>s</sub>kk<sub>l</sub>RRYk Yk<sub>l</sub>k dh QkdLk njh K<sub>l</sub>Rk dhfTk, \
- 24- fdLk Ok<sub>l</sub>L<sub>l</sub>Rk<sub>l</sub> dks mRRkYk Yk<sub>l</sub>k ds LkEk<sub>l</sub>Uks dgk<sub>j</sub> j [kk Tk<sub>s</sub>,ks fd mLkd<sub>l</sub> Ik<sub>l</sub>fRk<sub>l</sub>fCkEk Ok<sub>l</sub>L<sub>l</sub>Rk<sub>l</sub> ds Ck<sub>j</sub>k<sub>l</sub>Ck<sub>j</sub> Ck<sub>l</sub>Uk<sub>l</sub> mLkd<sub>l</sub>h fL<sub>l</sub>f<sub>l</sub>Rk  $\nu$ s<sub>s</sub> Ik<sub>l</sub>z<sub>l</sub>fRk Ck<sub>l</sub>Rk<sub>l</sub>kb<sub>s</sub>,k<sub>s</sub>
- 25- fn<sub>s</sub>,ks Xk<sub>s</sub>,ks fPk<sub>l</sub>kk Eka  $\mu$   $\nu$ s<sub>s</sub>  $\mu_1$  ds Ck<sub>l</sub>h<sub>l</sub>Pk Lk<sub>l</sub>kd<sub>l</sub> Lfkkf<sub>l</sub>Rk dhfTk, &



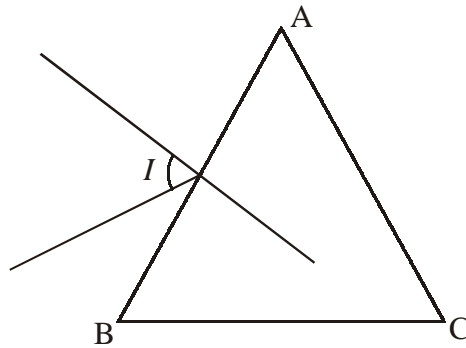
Tgkj l<sub>j</sub> μ<sub>1</sub> Ykdk ds lknkFkZ dk vIkOkRkZkKkd , Oka μ<sub>1</sub> Ekk/ ,kEk dk 1/2 vIkOkRkZkKkd gA

26- 20 LkEkh OkdLk njh dk , d mÜkYk Ykdk 50 LkEkh OkdLk njh ds vOkRkYk Ykdk ds LkEkdZ Eka gA LkqkPRk Ykdk dh OkdLk dh njh RkFkk {kEkRkk KkRk dhfTk, A

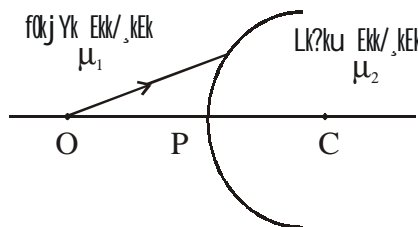
27- [kks[kYks fikZTEk Lks Ok.kZ fok{ksk.k LkEkOk Uggha gS D<sub>3</sub>kka \ j[kkfkPkk }kj k LkEkÖkkb<sub>3</sub>ks

**nh?kznÜkj h<sub>3</sub> k Ik' Uk**

28- fPk«k ds vUkq.kkj , d fikZTEk U<sub>3</sub>kkRkEk fokPYkUK dh fLFkFRk Eka j [kk gqvk gA mLk l<sub>j</sub> vkIkFRkRk fdj.k dk nIkjk IKFk l<sub>j</sub>jk djRks gq U<sub>3</sub>kkRkEk fokPYkUK dh fLFkFRk lkkIRk dhfTk, \ bLk vk/kkj l<sub>j</sub> Ik"B ds dks k A ] U<sub>3</sub>kkRkEk fokPYkUK dks k δm RkFkk fikZTEk dk vIkOkRkZkKkd μ Eka LkEkdk n'kZkks OkYks Lk«k dh LFkkIkUkk dhfTk, \



29- fPk«kUkq.kkj , d mÜkYk XkksYkh<sub>3</sub> k Ik"B fTkLkdh OkØRkk f«kT<sub>3</sub>kk R g\$ Tkks fokjYk Ekk/ ,kEk RkFkk Lk?kuk Ekk/ ,kEk dks vYkXk djRkk gA fCUnqO l<sub>j</sub> , d fCUnqvkdj dh dkbZ OkLRkq fLFkRk gA vkIkFRkRk fdj.k dk IKFk l<sub>j</sub>jk djRks gq OkLRkFkd IkFRkfCEkK lkkIRk dhfTk, A bLk vk/kkj l<sub>j</sub> XkksYkh<sub>3</sub> k Ik"B Lks OkLRkq dh njh u] IkFRkfCEkK dh njh v, OkØRkk f«kT<sub>3</sub>kk R RkFkk fokjYk Ekk/ ,kEk fTkLkd vIkOkRkZkKkd μ<sub>1</sub> ] , Oka Lk?kuk Ekk/ ,kEk fTkLkd vIkOkRkZkKkd μ<sub>2</sub> Eka LkEkdk n'kZkks OkYks Lk«k dh LFkkIkUkk dhfTk, A Tgkj μ<sub>2</sub> > μ<sub>1</sub> gA



30- fikZTEkka ds vOk.kZd LkqkXk Lks vIk D<sub>3</sub>kk LkEkÖkRks gA fLk) dhfTk, fd fikZTEkka ds vOk.kZd LkqkXk Eka Økmuk dkbk ds fikZTEk ds dks k dks fYkka/ dkbk ds fikZTEk ds dks k Lks vf/kd gkSkk Pkfg, \

- 31- , d , Lks Lk'Ek'n' khz dk Ok. kzk fUkEu fCkany/ka ds vk/kkj lkj dhfTk, Tkks Mh&CkXYkh ds fLk) kzk lkj dk, kz djRkk g&
- 1- UkkEkkfdRk fPk«k
  - 2- dk, kz&fokf/k
  - 3- mlk, kkkkA
- 32- , d , Lks njn'n' khz dk Ok. kzk fUkEu fCkany/ka ds vk/kkj lkj dhfTk, fTkLkd mlk, kkkk vkdk' kh, k flk. Mka dks ns[ kUks Eka fd, kk TkkRkk gS , Oka fTkLkEka nks mUKYk Ykkkka dk mlk, kkkk gkRkk gA
- 1- UkkEkkfdRk fPk«k ¼fTkCk IkzRkfCkEck LIk"V nf"V dh U, kkkRkEk njh lkj CkURkk gS
  - 2- vkok/kzk&{kEkRkk dh Xk. kUkk TkCkd IkzRkfCkEck
    - (a) LIk"V nf"V dh U, kkkRkEk njh lkj CkUks
    - (b) vUkRk lkj CkUks
    - (c) UKYkh dh Ykkkkbz A

### OkLRkqUk" B iz u

#### CkgfOkdYlkh, k lk' Uk

- 1- , d LkEkCkkgq fikz'Ek Eka lkzk'k bLk lkzkj Xkq'kj Rkh gSfd vkkRkUk dks k fUkXkRk dks k ds Ckj kCkj gA , kn fuXkRk dks k fikz'Ek ds dks k dk RkhUk Pkkfkkbz gks Rkks fokPKYUk dks k gkXkk&

  - (a)  $45^\circ$  (b)  $39^\circ$  (c)  $20^\circ$  (d)  $30^\circ$

- 2- , d fikz'Ek dk dks k  $5^\circ$  gA YkkYk vkj CkXkUkh jzk dsfYk, bLkds vkkRkUk d ØEk' k% 1-5 Ok 1-6 gS Rkks fikz'Ek }kj k mRlUkUk dks kh, k fok{ksk. k g&

  - (a)  $7-75^\circ$  (b)  $5^\circ$  (c)  $0-5^\circ$  (d)  $0-17^\circ$

- 3- , d lkjn' khz Ekk/, kEk dk /kq. k dks  $60^\circ$  gS Rkks Ekk/, kEk dk vkkRkUk d o viorz dks k gkXkk&

  - (a)  $\sqrt{3}] 30^\circ$  (b)  $\sqrt{2}] 45^\circ$  (c)  $\sqrt{3}] 60^\circ$  (d)  $\sqrt{2}] 30^\circ$  A

- 4- , d dks k Lks lkzk'k dh fdj. ka dRk ds fikz'Ek lkj vkkRkRk gA fikz'Ek ds vkkRkUk d  $\mu$  RkFkk fikz'Ek dks k  $\alpha$  gS YkkXkXk vfHkYk vkkRkUk dh fLFkRk Eka



fukxkRk fdj .k dk fOkPKYKUK dksk gkXkk&

- (a)  $(\mu - 2)\alpha$  (b)  $(\mu - 1)\alpha$  (c)  $(\mu + 1)\alpha$  (d)  $(\mu + 2)\alpha$

5- fdLkh Ekk/ ,kEk Eka i RkFkk r ds CkhPk [khpkk Xk,kk OkØ fCkEck fPk«k ds vUkpkkj gSRkFkk Ekk/ ,kEk Eka Ikdk'k dh PkYk nc gSRkks n dk Ekkuk gkXkk&

- (a) 1.5 (b) 2 (c)  $\frac{1}{2}$  (d)  $\frac{1}{\sqrt{3}}$

6- YkXk Lks 45 LkEkh- dh njih lkj j [kh gpZ LkPZ dk IkZRFckXk YkXk ds nUkjH vj 90 LkEkh- njih lkj gS rks YkXk dh IkZFRk CkRkbb, k&

- (a) mUKYk (b) vOkRYk (c) LkEkRYkkOkRYk (d) mRRkYkkOkRYk A

7- 30 LkEkh OkdLk dh njih OkYks , dmRRkYk YkXk dk 20 LkEkh- OkdLk njih OkYks vOkRYk YkXk ds LkXkDZ Eks j [kk Xk,kk gSRkks LkXkPRk YkXk dh OkdLk dh njih gkXkk&

- (a) 30LkEkh- (b) 60LkEkh- (c) 60 LkEkh- (d) 12 LkEkh-

8- dkP (  $\mu = \frac{3}{2}$  ) ds mRRkYk YkXk dh OkdLk njih 12 LkEkh gA , kfn Okg (  $\mu = \frac{5}{4}$  ) ds æOk Eka Mqk fn, kk Tik, ks Rkks mLkdh OkdLk njih gkXkk &

- (a) 6 LkEkh- (b) 12 LkEkh- (c) 24 LkEkh- (d) 30 LkEkh-

9- mLk LkEkRYkkRYk YkXk dh OkdLk njih fTkLkdh mRRkYk LkRkg dh OkØRk f«T, kk 10 LkEkh- vj fTkLkds lknkFkZ dk vIkØRkØkkad 1-5 gS gkXkk&

- (a) 5 LkEkh- (b) 10 LkEkh (c) 15 LkEkh (d) 20 LkEkh -

10- , d mRRkYk YkXk  $\mu = 1.5$  dh OkdLk njih 10 LkEkh gA , kfn bLkds , d Ik"B dh OkØRk f«T, kk 7-5 LkEkh gSRkks nUkjs Ik"B dh OkØRk f«T, kk gkXkk &

- (a) 7-5 LkEkh- (b) 15 LkEkh- (c) 75 LkEkh- (d) 5-0 LkEkh-

mRRkjEkYk & 1- (d) 2- (c) 3- (a) 4- (b) 5- (d) 6- (a) 7- (c) 8- (d) 9- (d) 10- (b)

**[kkYkh LFkkUK Hkj k&**

1- /kk ds Pk' Eks dh {kEkRkk &&&&&&gkRkh gA

2- &&&&&&YkXk Eka vkOk/kZk dk Ekkuk LknSk 1 Lks dEk gkRk gA

3-  $f_r - f_v = \dots\dots\dots A$

- 4- Yk<sub>1</sub> ds lknkFkz dk vIkOkRkZkkad vf/kd gk<sub>1</sub> Ikj &&&&&&&dEk gks TkRkRk gA
  - 5- , d mRRkYk Yk<sub>1</sub> dh OkdLk njih &&&&&&&RkFkk vOkRkYk Yk<sub>1</sub> dh OkdLk njih &&& gk<sub>1</sub> gA
  - 6- Lk<sub>1</sub> ds LIkDVEk dh Ik<sub>1</sub>FRk &&&&&&&gk<sub>1</sub> gA
  - 7- U<sub>1</sub> k<sub>1</sub>RkRkEk fOkPkYkUk dh fLFkRk Ek vIkRkUk dks k vk<sub>1</sub> &&&&&LkEkUk gk<sub>1</sub> gA
  - 8- j<sub>1</sub>khuk dk<sub>1</sub> dk lkmMj &&&&&fn [kkbz n<sub>1</sub> gA
  - 9- bYkDVRUk Lk<sub>1</sub>Ek<sub>1</sub>' khz dh &&&&&&Ik<sub>1</sub>dk' h<sub>1</sub> k Lk<sub>1</sub>Ek<sub>1</sub>' khz Lks vf/kd gA
  - 10- njih' khz Ek nh?kz }kj d dj<sub>1</sub>Uks Lks &&&&&&gk<sub>1</sub> gA
  - 11- LOkL<sub>1</sub> k vk<sub>1</sub> dh fOkHk<sub>1</sub>Uk Lk<sub>1</sub>Ek<sub>1</sub> &&&&&&gk<sub>1</sub> gA
  - 12- njih' khz dh fOkHk<sub>1</sub>nd {kEkRk<sub>1</sub> vfHk<sub>1</sub>' k d&&&&&&&Ik<sub>1</sub> fUkHk<sub>1</sub> dj<sub>1</sub>Rk gA
  - 13- Ok. k<sub>1</sub>REkd vOk' k<sub>1</sub>sk. k fUk<sub>1</sub>Ek &&&&&&dk fUk<sub>1</sub>Ek gA
  - 14- Lk<sub>1</sub>SM<sub>1</sub> kEk Ik<sub>1</sub>dk' k Ek &&&&&&&RkFkk &&&&&&Rk<sub>1</sub> j<sub>1</sub>kn<sub>1</sub> k<sub>1</sub> dk Ik<sub>1</sub>dk' k gk<sub>1</sub> gA
  - 15- dk<sub>1</sub>Uk ds k<sub>1</sub>Sk<sub>1</sub>d &&&&&&&LIkDVEk n<sub>1</sub> gA
  - 16- Lk<sub>1</sub>DRk Yk<sub>1</sub> dh OkdLk njih  $\frac{1}{F}$  &&&&&&&gk<sub>1</sub> gA
  - 17- Xk<sub>1</sub>kh<sub>1</sub> k fOkIkFkUk dks &&&&&&&Yk<sub>1</sub> ds }kj<sub>1</sub> nj fd<sub>1</sub> k<sub>1</sub> Tk Lk<sub>1</sub>Rk gA
  - 18- , d OkL<sub>1</sub>Rk<sub>1</sub> dk Ik<sub>1</sub>Rk<sub>1</sub>Fk<sub>1</sub>Ek<sub>1</sub> 2f Ik<sub>1</sub> Ik<sub>1</sub>Rk gk<sub>1</sub> gS Tk<sub>1</sub>Ek<sub>1</sub>d OkL<sub>1</sub>Rk<sub>1</sub> &&&Ik<sub>1</sub> j [kh gk<sub>1</sub> gA
  - 19- ¶<sub>1</sub> k<sub>1</sub>Tk CkYk Ek Ik<sub>1</sub>Uk Hk<sub>1</sub>Uks Ik<sub>1</sub> Okg &&&&&&&Yk<sub>1</sub> dh Hk<sub>1</sub>Rk dk<sub>1</sub> k<sub>1</sub> dj<sub>1</sub>Rk gA
  - 20- bYkDVRUk Lk<sub>1</sub>Ek<sub>1</sub>' khz dh fOkHk<sub>1</sub>Uk {kEkRk<sub>1</sub> &&&&&&&Xk<sub>1</sub> gk<sub>1</sub> gA
- mRRk<sub>1</sub>Ek<sub>1</sub>Yk & 1- 'k<sub>1</sub>; 2- vory 3- wf<sub>1</sub> 4- Okd<sub>1</sub> njih 5- /kukRed] \_\_. k<sub>1</sub>Red  
 6- l rr 7- vior<sub>1</sub> dks 8- l Qn 9- vko/k<sub>1</sub> {kerk 10- vf/kd pedhyk 11- 1 feuV 12- }kj d 13- fdjpk<sub>1</sub> dk fu; e 14- 6890°A] 6896°A 15- cSM Li DVe  
 16-  $\frac{1}{f_1} + \frac{1}{f_2}$  17- Øk<sub>1</sub> r y<sub>1</sub> 18- 2f 19- mRry y<sub>1</sub> 20- 125000 x<sub>1</sub>kA

# bdkbz &02

## Rkj žk Ikzdk' kd h

### vfRk Yk?kqRRkj h, k Ikz Uk &

- 1- D, kk gkžkk ,kfn ,kžk ds f} & fLYKV Ikžkkžk Eka fLYKV dh Pkkš/kbz dEk dj nh Tkk, ka
- 2- Lkkčtk ds ČkŸkČkŸks jžk hUk fn [kkbz nBks gš D, kka
- 3- D, kk dkj .k gS fd /Okfuk Rkj žka Ikzdk' k Rkj žka dh vIkškk TKYnh fOkOkfRkRk gks TkkRk gš
- 4- /kžk .k dks k vjš vIkOkRkžkžkžk Eka Lkžkžk ČkRkRkšks OkkYks fuk, kEk dks fYkf [k, \
- 5- U, kŸ/Uk ds fLk) kžk ds vk/kjž Ikj ČkRkRkšks fd Ikzdk' k Lkž/kh jš [kk Eka XkEkUk djRk gš
- 6- fČkUng vkdkj dk jš [kd vkdkj ds Lkkžk Lks mRkUk Rkj žkžkžkšks dks Ikfj Hkkf"Rk dhfTk, \
- 7- ,kžk ds f} fLYKV Ikžkkžk Eka ,kfn , d fLYKV dks UkhYks RkFk nUkjs fLYKV dks YkkYk LkŸkžkžkžk dkkžTk Lks < d fn, kk Tkk, kš Rkks O, kFRkdj .k IkfRk: Ik Eka D, kk vBkž IkMžkžkA
- 8- ,kžk ds f} fLYKV Ikžkkžk Eka ,kfn nkkžka fLYKV/ka ds ČkPk dh njh d Ikzdk' k ds Rkj žknš, kž λ Lks Nkš/h ¼/Fkkžk d < λ½ gks Rkks O, kFRkdj .k Ikžkkžk dh Okk, kq ds LFkkUk Ikj TKYk Eka djUks Ikj D, kk Ikžkkžk IkMžkžkA
- 9- ,kžk ds Ikžkkžk dh Okk, kq ds LFkkUk Ikj TKYk Eka djUks Ikj D, kk Ikžkkžk IkMžkžk A
- 10- D, kk dkj .k gS fd nks LOkRkžk Ikzdk' k & Lkkžk Lks O, kFRkdj .k IkfRk Ugha fd, kk Tkk LkdRk gš
- 11- D, kk dkj .k gS fd : EkkYk Lks nš [kUks Ikj 'Okžk Ikzdk' k jžk hUk fn [kkbz nBk gš

### Yk?kqRRkj h, k Ikz Uk

- 12- O, kFRkdj .k dh ?kVUk Eka dŸ fČkUng/ka Ikj RkOkRk 'kž, k , Oka dŸ fČkUng/ka Ikj vf/kdRkEk gkžk gš D, kka
- 13- vkik fdLk Ikzdkj IkGpkkUkžkšks fd fn, kk Xk, kk Ikzdk' k &
  - 1- v/kfOkRk gš
  - 2- vka' kd /kŸOkRk gš RkFk

- 3- LkEKRYk /kOKRk gA
- 14- fLk) fdFTk, fd lkjKOKRk }kj /kOK.k gskls lkj lkjKOKRk fdj.k vksj vIKOKRk fdj.k lkjLlkj YkOKRk gkRk gA
- 15- Ysk'k fOKRk vksj YkmUkgQj fOKRk Eka vRkj fYf[k, A
- 16- D,k dkj.k gSfd ,d LkYkz lkj's Lk's lkj'okj ds LkL,kka dks lkzdf'krk djRk gA
- 17- dæh,k fY'k Lks RkLlkjh dYkh fY'k CkUkks ds fYk, Ckgj Rkd lkj'kks dYkh nks lkz'k Rkj'kka Eka lkFkURkj Rfkk dYkURkj fdkUk gskk Pkfg, A TkCfd  $\lambda = 6000\text{\AA}$  gA
- 18- \_\_Tk'kj }kj lkz'k ds fOKRk dh O,k[k,k dk Ok.k fUkEuk 'h'kz'ka Eka dhFTk, &
  - 1- lk,kk'kd O,kLfk
  - 2- RkOKRk fOKRk.k vkj[k A
- 19- /Okuk dh Rkj'kka dh lk'fRk vUkLfk Ugha gkRk D,k LkÖkk,k

**nh?kzRRkj h,k lk' Uk**

- 20- O,kfDRkdj.k fdLks dgrks gA vf/kdRk RkOKRk ds fYk, vkok'kd 'krkz fYf[k, \
- 21- A vksj 2A vk,kEk dh nks Rkj'ks ,d Lkfk PkYkdj O,kfRkdj.k djRk gA Rks lkj.kkEk vk,kEk Rfkk RkOKRk fUkEuk fLfkR,kka Eka Kkrk dhFTk, A TkCfd mukds Ek/kdksk 0° Rfkk 180° gA

**fjDRk LFkkUkka dh lkRkz dhFTk,ks**

- 1- f}Rk,kd Rkj'kd,k Ekv'k Rkj'k ds &&&&vk'ks Ck<Rk gA
- 2- fY'k Pk'k'bz dYk Lk'k L<<kkka ds CkPk dh njh &&&&gkRk gA
- 3- lkjKOKRk }kj /kOK.k Eka lkjKOKRk vksj vIKOKRk fdj.k &&&&gkRk gA
- 4- Pk'Ekka Eka lk's'kbM dk ml,kk &&&&ds fYk, fd,k Tkrk gA
- 5- Rkj'k Eka dYkRkj ds Rk'k &&&&lkFkRkj gkRk gA
- 6- ,ka ds f}&fLYkV lk'k Eka &&&&fOKRk gkRk gA
- 7- LkCk'k ds j'kghuk ?k's'k dks 'Okk lkz'k Lks n'k'k lkj &&&&ds dkj.k j'kghuk fn[kkbz nRk gA

- 8- Hkkjh OkkgUkka ds fOk. M fLØUk RkFkk gMYkkbV ds dOkj XYkkLk Ikkykj kbM ds CkUks gkRks gS fTkUk ds v{k m/OkkZkj Lks &&&&&&&dks kkkj Ökps gkRks gA
- 9- ,kzk ds f}fYkLV Ikzkkkz Eka fYf'k }kjk fOkLFkkfRk jzk ds fYk, U,kkkRkEk gkRkh gA
- 10-  $y_1 = a \sin wt$  vkj  $y_2 = a \cos wt$  }kjk fu: fRk nks Rkj zkka Eka && dYkkRkj gkRkh gA
- 11- Rkj zks, d LFkkUk Lks nkkj's LFkkUk Rkd &&&LFkkUkkRkfjRk djRkh gA
- mRRkj EkYk&** 1- Okk 2- 0, kRØEkkUkkRkh 3- Ikj LIk j YkOkRk 4- Ikzk'k ds /kq. k
- 5-  $\frac{\lambda}{2\pi} \phi$  6- Ykky'k 7- 0, kFRkdj. k 8-  $45^\circ$  9- CkzkUkh 10-  $\frac{\pi}{2}$  11- ÅTkz A

**OkLRkqUk'B Ikz Uk &**

- 1- ,kzk ds Ikzkkkz Ekakfn nks fLYkVka ds CkhpK dh njh dks ?kVkdj, d fRkgkbZ dj nh Tkks Rks fYf'k PkkB/kbz gkRkh A
- (a)  $\frac{1}{6} \times \phi$  (b)  $\frac{1}{3} \times \phi$  (c)  $3 \times \phi$  (d)  $6 \times \phi$
- 2- nks Rkj zkka ds IkR, kd dk vk, kEk a RkFkk vkOkfRRk f gSmUkdh dYkkvka dk vRkj  $\frac{\pi}{2}$  gS A buKds v/,kkj ksk. k Lks Ikfj. kEkh Rkj zk dk vk; ke RkFkk vkOkfRRk gkRkh &
- (a)  $\frac{a}{\sqrt{2}}, \frac{f}{2}$  (b)  $\frac{a}{\sqrt{2}}, f$  (c)  $2a, \frac{f}{2}$  (d)  $\sqrt{2a} ] f$
- 3- , d Ikzk'k L«kkRk fdLkh Ikqkd dh vkj 0-8c Okk Lks mIkXkFEkRk gS  $5500 \text{ A}^\circ$  Rkj zk nS, kz Ikzk'k fdj. kka dk MkiYkj fOkLFkkUk gA
- (a)  $5500 \text{ A}^\circ$  (b)  $1833 \text{ A}^\circ$  (c)  $3667 \text{ A}^\circ$  (d)  $7333 \text{ A}^\circ$
- 4- , dYk fLYkV }kjk YkUkqQj fOkRkzk dk Ikq. k dj IkUks ds fYk, fLYkV Ikj vkIkfRk Rkj zkkk gkRkh Pkkfg, A
- (a) Xkkykkdkj (b) Ckykukdkj (c) LkEkRkYk (d) nh?kz OkRÜkkdkj
- 5- fUkEuk Lks dkSk Lk dFkUk Lkgh Ukgha gS-
- (a) Ykkyk Ikzk'k dh Rkj zknS, kz gjs Ikzk'k dh Rkj zknS, kz Lks vf/kd gA
- (b) UkhYs Ikzk'k dh Rkj zknS, kz Ukj zkh Ikzk'k dh Rkj zknS, kz Lks Nks/h gA
- (c) gjs Ikzk'k dh vkOkfRRk UkhYs Ikzk'k dh vkOkfRRk Lks vf/kd gA

- (d) ජනපතයේ ජනගහණයේ වෙනස සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- 6- 1 වෙනස්වීමේ වේගය  $6.5 \times 10^{-17}$  වන විට ජනගහණයේ වෙනස සඳහා වෙනස් වන පරිදි ගණනය කරන්න. මෙහිදී ජනගහණයේ වෙනස සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- (a) 0-65 වෙනස්වීම් (b) 1-63 වෙනස්වීම් (c) 3-25 වෙනස්වීම් (d) 4-88 වෙනස්වීම් A
- 7- වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- (a) වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න. වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- (b) වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න. වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- (c) වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න. වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- (d) වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- 8- වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- (a)  $I = \sqrt{A^2 + B^2 \cos^2 \phi}$  (b)  $I = \frac{A}{B} \cos \phi$
- (c)  $I = A + B \cos \frac{\phi}{2}$  (d)  $I = A + B \cos \phi$
- මෙහිදී 1. (c) 2. (d) 3. (c) 4. (c) 5. (c) 6. (b) 7. (b) 8. (d)

## පිටුව 03

## පිටුව 03

වෙනස් වන පරිදි ගණනය කරන්න.

- 1- වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- 2- වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.
- 3- වෙනස්වීම් සඳහා වෙනස් වන පරිදි ගණනය කරන්න.

Ikz kkkk dks D, kka nkgj kRks gS

- 4- fok{ksk PkqCkdROkEkkIkh Eka PkqCdh, k LkPZ Nks/h D, kka gkRkh gS
- 5- nksYkuk PkqCkdROkEkkIkh ds Ikz kkkk Eka nIkZ k ds UkhPks CkUks fuknZ k jS[kk dh mlk, kksXkRkk CkRkkb, ks
- 6- , dkd /kqk dh IkfjHkk"kk fyk[kdj /kqk IktCkY, k dh SI bdkbz CkRkkb, kA
- 7- PkqCdh, k {ksk dh RkhOkRkk dh SI vkSj C.G.S. Ekkkd Eka Lkakk CkRkkb, kA
- 8- XkkWk dh tanA vkSj tanB fokf/k Eka dksk JSB gS vkSj D, kka
- 9- LOkRkackRkkIkakZd YkVdk gq/k PkqCkd LknSk mRRkj nf{k.k fn'kk Eka BgjRkk gS D; ka
- 10- ,kfn z Ykakkbz ds Rkkj dks EkkM/dj OkRRkdkj j [kk Tkk, ks vkSj mLkEka I /kkj k IkakkfgRk djRks gS Rkks PkqCdh, k vk?kwkZ dk Ekkuk Kkrk dhfTk, A
- 11- D, kka gkRkk ,kfn PkqCkd dks mLkdh Ykakkbz ds vUkfn'k dkVk Tkk, ks
- 12- nksYkuk PkqCkdROkEkkIkh fdLk fLk) kRk Ikj dk, kZ djRkk gS LkEkOkkb, kA
- 13- fok{ksk PkqCkdROkEkkIkh dh Hkq'kk dks Ikz kkkk ds IkakZ PkqCdh, k ,kE; kRRkj Eka D, kka LkEkk, kksfTRk djRks gS
- 14- PkqCkd ds Ek/ ,k fCkanqLks/kqkka dh njh LkEkkuk Uk gks Rkks mLkds dkj .k gkks OkiYkh =qV dk UKkE fykf[k, RkFkk mLkdk fukjkdj .k fdLk Ikakj djRks gS fykf[k, A
- 15- nksYkuk PkqCkdROkEkkIkh ds jdkCk fdLk /kkrkq ds CkUk, ks TkkRks gS vkSj D, kka

**Yk?kqRRkj h, k Ikz Uk**

- 16- fLk) dhfTk, fd PkqCdh, k v{k ds YkEck v/kZd Ikj fLFkRk fdLkh fCkanqIkj PkqCdh, k {ksk dh RkhOkRkk B dh fn'kk PkqCdh, k f}/kqk vk?kwkZ M dh fn'kk ds fokIkfjRk gkRkh gS

1/2 FkOkk 1/2

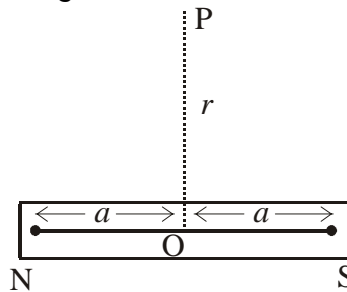
- 16- fLk) dhfTk, fd PkqCdh, k v{k ds YkEck v/kZd Ikj fLFkRk fdLkh fCkanqIkj PkqCdh, k {ksk dh RkhOkRkk B dh fn'kk vkSj PkqCdh, k f}/kqk vk?kwkZ M ds CkhPk 180 dk dks k gkRkk gS

- 17- fLk) dhfTk, fd PkqCdh, k v{k Ikj a njh Ikj fLFkRk fdLkh fCkanqIkj PkqCdh, k {ksk dh RkhOkRkk B dh fn'kk vkSj PkqCdh, k f}/kqkZ M ds CkhPk 'kkl, k vdk dk dks k gkRkk gS

1/2 Fk0k1/2

fLk) dhfTk, fd PkqCkdh<sub>3</sub>k v{k lkj d njuh lkj fdLkh fCkq lkj PkqCkdh<sub>3</sub>k {ksek dh Rkh0kRkk B dh fn'kk PkqCkdh<sub>3</sub>k f}/kqk vk?kwkz ds LkEkRkj gkRkh gA

- 18- nks PkqCkdh<sub>3</sub>k /kqka Eka Lks, d dk /kqk lkkCY<sub>3</sub>k nlujs dk 8 Xkqkk gsbUkds CkhPk dh njuh 10 LkEkh- gSA nkslka lkj Llkj 1000 XkEk Hkkj dk CkYk vkj kFkRk dj Rks gA lkr<sub>3</sub>kd /kqk dk /kqk lkkCY<sub>3</sub>k KkRk dhfTk, \ fn<sub>3</sub>kk gqvk gS  $g = 980 \text{ LkEkh} \cdot \text{s}^{-2} \text{ A}$
- 19- nks LkTkRkh<sub>3</sub>k /kqk fTUKds /kqk lkkCY<sub>3</sub>k dk vUkqkRk 16%2 gS, d EkhVj dh njuh lkj j [ksXk, gA nkslka ds Ek<sub>3</sub>k fCkq KkRk dhfTk, Tgk<sub>3</sub> lkj, dka k /kqk lkj YkXkUks CkYk uS/ CkYk 'k<sub>3</sub>k gkA
- 20- bLlkkRk ds Lkh/ks RkKj dh YkRkbz L gS RkFk PkqCkdh<sub>3</sub>k vk?kwkz M gA TkCk bLks EkK/dj v/kRkRk dk vdkj ns fn<sub>3</sub>kk TkRk gS RkCk bLkd PkqCkdh<sub>3</sub>k vk?kqkz KkRk dhfTk, \
- 21- UkhPks fn<sub>3</sub>ks Xk<sub>3</sub>ks fPk«k Eka PkqCkdh<sub>3</sub>k {ksek dh Rkh0kRkk fCkq P lkj KkRk dhfTk, Tgk<sub>3</sub>-  $r = a$ , Oa  $\vec{M} = 2ma \text{ gA}$



nh?kzn0kj h<sub>3</sub>k lkz Uk

- 22- f0k{ksek PkqCkdr0kEkklkh dh Lkg<sub>3</sub>kRkk Lks 'k<sub>3</sub>k f0k{ksek f0k/k }kj nks PkqCkdk ds PkqCkdh<sub>3</sub>k vk?kwkz dh RkYkUk XkUk dh tanB fLFkfrk Eka fUkEUKkdrk 'kh"kdka ds vURkXkRkz dhfTk, -
  - 1- vk0k' kd fPk«k
  - 2- Lk«k dh LFkkUk
  - 3- lkq<sub>3</sub>k Lkj .kh
  - 4- nks Lk0k/kkFuk<sub>3</sub>kk; A
- 23- nksYkuk PkqCkdr0kEkklkh dh Lkg<sub>3</sub>kRkk Lks nks LFkkUkka dh {kSRkTk Rkh0kRk vka dh RkYkUk fUkEUK 'kh"kdka ds vURkXkRk dhfTk, -



- 1- Lkæc dh Lfkkikukk
- 2- lkæ.k.k Lkkj.kh A
- 3- dkbz nks LkkOk/kkfuk,kka
- 24- nksykuk PkæCkdROkEkkiKh dk fLk) kæk LkEkÖkkrk gq nksykukdkYk ds fYk, O,kækd Kkrk dhfTk, \
- 25- , d PkæCkd dks lkæz lkf' PkEk fn'kk Ekaj [kk Xk,kk gSA v{kh,k fLFkrk Eka , d PkæCdh,k Lkæz dks 10 Lkækh- dh nijk lkj j [kk Xk,kk gSA ,fn Lkæz dk fok{ksk 30° gks RkFk lkFkh ds {kæRkTk ?kVd dh RkhOkRk 0.36×10<sup>-4</sup> V.kYkk gks Rkks PkæCdh,k vk?kwkz dh Xk.kukk dhfTk, A
- 26- v- , d PkæCdh,k f}/kæk fTkLkd f}/kæk vk?kwkz M g\$ dks , d LkEkuk PkæCdh,k {kæk fTkLkd RkhOkRk B gSEkaj [kk Xk,kk gSRkks PkæCkd dks 0° Lks 90° Rkd ?kækkUs Eks fd ,ks Xk,ks dk,kz dh Xk.kukk dhfTk, A
- Ck- , d LkEkuk PkæCdh,k {ks= ds YkæOkRk fLFkrk Eka , d PkæCdh,k f}/kæk fTkLkd f}/kæk vk?kwkz M g\$ Ekaj [kk Xk,kk gSA Rkks mLks 180° dks k Rkd ?kækkUs Ekafd ,ks Xk,ks dk,kz dh Xk.kukk dhfTk, A

**CkgfOkdYkh,k lkz Uk**

- 1- , d PkæCkd , d Lfkkuk lkj 30 nksykuk lkfRk fEkUV djRk gSRkks nLkjs Lfkkuk lkj Tkgka PkæCdh,k {kæk nks Xkækk gS PkæCkd dk nksykuk dkYk gækk-  
 (a) 4 LkdM (b) 2 LkdM (c)  $\frac{1}{2}$  LkdM (d)  $\sqrt{2}$  LkdM
- 2- nksykuk PkæCkdROkEkkiKh dk,kz djRk g\$-  
 (a) NM+PkæCkd lkj YkækkUs OkYkk vk?kwkz  
 (b) NM+PkæCkd lkj YkækkUs OkYkk CkYk  
 (c) NM+PkæCkd lkj YkækkUs OkYkk CkYk RkFk CkYk vk?kwkz  
 (d) mlkj kDRk Eka Lks dkbz Ugha
- 3- nksykuk PkæCkdROkEkkiKh dk jdkCk Ckuk gækk g\$-  
 (a) vUkPkæCdh,k lknkFkz (b) lkfRkPkæCdh,k lknkFkz  
 (c) Ykk\$ PkæCdh,k lknkFkz (d) Lkæks dk

- 4- fUkfdYk] LkkBkk Pkknh lknkFkZ g\$-
- (a) vUkPkkCkdh,k lknkFkZ (b) lkrPkPkkCkdh,k lknkFkZ  
(c) YkkSj PkkCkdh,k lknkFkZ (d) LkkBks dk A
- 5- lFokh ds PkkCkdh,k {k\$sk ds dkj .k PkkCkdh,k {k\$sk ds LkEkkrk YkXkUks OkkYks CkYk ,k\$Ek dk vk?kwkZ gkRkk g\$-
- (a) MBsinθ (b) MSsinθ (c) 0 (d) bukEka Lks dkbZ Ukgha A
- 6- mRdDæd =qV dks nj fd,kk Tkk LkdRkk g\$-
- (a) nks lkbBîkad Ykdj (b) Pkkj lkbBîkad Ykdj  
(c) RkhUk lkbBîkad Ykdj (d) bukEka Lks dkbZ UkghA
- 7- nkykuk PkkCkdRok Ekkikh dks LkEk,k\$Tkrk fd,kk TkrRkk g\$-
- (a) PkkCkd fuj{kh; fLFkrk Eka  
(b) PkkCdh,k ,kkE; k\$kj dh fn'kk Eka  
(c) PkkCdh,k ,kkE; k\$kj ds Yk\$krk fn'kk Eka  
(d) fdLkh Hkh fn'kk Eka
- 8- PkkCkd' khYkrkk dh bdkbZ gkRkh g\$-
- (a) U,kw/Uk EkhVj<sup>2</sup> (b) U,kw/Uk@, Eikh,kj<sup>2</sup>  
(c) ,fEikh,kj<sup>2</sup>@U,kw/Uk (d) bukEka Lks dkbZ Ukgha A
- 9- fok{k\$sk PkkCkdRokEkkikh dk,kZ djRkk g\$-
- (a) CkYk vk?kwkZ dk fLk) kRk  
(b) CkYk,k\$Ek dk vk?kwkZ dk fLk) kRk  
(c) lkrkFØ,kk CkYk ds fLk) kRk lkj  
(d) bukEka Lks dkbZ UkghA
- 10- lFokh ds mRRkj h /k\$kk lkj nkykuk PkkCkdRokEkkikh dks nkykuk djUks lkj nkykuk dkYk lkrRk gk\$kk -
- (a) vUkRk (b) 'k\$kk (c) , d LkdM (d) Pkkj LkdM
- mRRkj - 1. (d) 2. (a) 3. (a) 4. (b) 5. (c) 6. (a) 7. (b) 8. (b) 9. (d) 10. (a)

**[kkYkh LFkkUk Hkjks-**

- 1- nkŸkUk PkĕCkdRok Ekkikh ds nkŸkUk dkYk dk Lkwk \_\_\_\_\_gkRkk gŸ
- 2- fok{kskPkĕCkdRok Ekkikh Eka LkadRkd \_\_\_\_\_dk CkUkk gkRkkgŸ
- 3- PkĕCkdRok' khyrk  $\mu_0$  dk Ekkuk \_\_\_\_\_gkRkk gŸ
- 4- nkŸkUk PkĕCkdRok Ekkikh \_\_\_\_\_ds fLk) kRk Ikj dk<sub>z</sub> djRkk gŸ
- 5- nkŸkUk PkĕCkdRokEkkikh dk vkORkZdkYk 1% gS Rkks PkĕCdh<sub>z</sub>k vk?kwkZ dk vUkĕkRk \_\_\_\_\_ gkRkk A
- 6- YkŸŸ PkĕCdh<sub>z</sub>k lknkFkZ dh vkiŸ{k d PkĕCkd 'khyRkk \_\_\_\_\_gkRkh gŸ
- 7- , d /kkjkokkgh Ykk \_\_\_\_\_ ds Rky<sub>z</sub>k gkRkk gŸ
- 8- lFokh dk PkĕCdh<sub>z</sub>k {ksk \_\_\_\_\_ fn'kk Eka dk<sub>z</sub> djRkk gŸ
- 9- lFRkPkĕCdh<sub>z</sub>k lknkFkZ \_\_\_\_\_ Lks LORkæk gkRkk gŸ
- 10- lR<sub>z</sub>kd Ikj Ekk.kq Eka bYkDVmUk dh \_\_\_\_\_ vkŸ \_\_\_\_\_XkFRk<sub>z</sub>kka ds dkj .k PkĕCkdRok dk Xkqk gkRkk gŸ
- 11- YkŸŸ PkĕCdh<sub>z</sub>k /kRkq \_\_\_\_\_gkRkh gŸ
- 12- HkkŸkŸkŸkd mRRkjh , Oka nf{k.kh /kĕkka dks fEKYkkUks OkYkh jŸkk dks \_\_\_\_\_ dgRks gŸ
- 13- Okg fCkanqFTkLk Ikj PkĕCkd dk PkĕCdh<sub>z</sub>k {ksk , Oka lFokh ds PkĕCdh<sub>z</sub>k {ksk dk {kSRkTk ?kVd CkjKckj gkRkk gS \_\_\_\_\_ dgYkkRkk gŸ
- 14- PkĕCdh<sub>z</sub>k CkYk jŸkk \_\_\_\_\_ /kĕk Lks fUkdYkRkh gŸ
- 15- fu<sub>z</sub>kkUk Ikj Ekk.kq dk PkĕCdh<sub>z</sub>k vk?kwkZ \_\_\_\_\_gkRkk gŸ

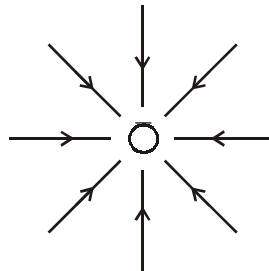
**mRRkj EkkYkk-** 1-  $T = 2\pi\sqrt{\frac{I}{MH}}$  2- , Y<sub>z</sub>kĕEfkU<sub>z</sub>kEk 3-  $4\pi \times 10^{-7} \text{ N/A}^2$  4- CkY<sub>z</sub>kĕEkd ds vk?kwkZ 5- 81% 6- CkgRk vf/kd 7- PkĕCdh<sub>z</sub>k f}/kĕk 8- mRRkj nf{k.k 9- Rkkik 10- d{kh<sub>z</sub>k , Oka PkØ.k 11- lCkæk PkĕCdh<sub>z</sub>k 12- HkkŸkŸkŸkd ,kE<sub>z</sub>kkŸkj 13- mnkLkhUk fCkanq 14- mRRkjh /kĕk 15- 'kU<sub>z</sub>kA

# bdkbZ 4

## fLFkj fOk | Bk

### vfRk Yk?kqnÜkj h,k Ikz Uk -

- 1- fOk | Bk IYkDLk dk Ekkuk fdLk Ikfj fLFkFRk Eka /kukREkd , Oka fdLk Ikfj fLFkFRk Eka \_\_\_ .kkREkd gkRkk gA
- 2- , d LkEkkuk fOk | Bk {ks= Eka f}/kqk dks ?kqkkUks Eka fd ,ks Xk ,ks dk ,kz dk Ekkuk fdLk fLFkFRk Eka vf/kdRkEk , Oka fdLk fLFkFRk Eka U ,kukRkEk gkRkk gA
- 3- fPk«k&



- $V_A - V_B$  dk Ekkuk /kukREkd gkRkk ,kk \_\_\_ .kkREkd vksj D ,kka
- 4- vkOks' kRk [kks[kYks Xkks'ks ds vanj vkOks'k dk Ekkuk 'kD ,k gkRkk gS D ,kka
  - 5- Ikj kOks| Bkka dk Ekkuk LknSk 1 Lks vf/kd gkRkk gS D ,kka
  - 6- fdLk HkksRkd jkf'k dk Ekk«kd  $NC^{-1}$  gkRkk gS. Okg HkksRkd jkf'k vfn'k jkf'k gkRkk ,kk Lkfn'k jkf'k gkRkk \
  - 7- [kks[kYks Pkkykd ds vanj IkR ,ksd fCkanq Ikj fOkHkOk mLkds Ckkâ ,k Ik" B ds fOkHkOk ds Ckj kCkj gkRkk gS D ,kka
  - 8- ,kfn fdLkh Ik" B Ikj 1-9 dWkkkUk vkOks'k T ,kknk gksRkks mLk Ik" B Ikj fdRkUks bYkD VmUk vf/kd gkRks
  - 9- jf[kd vkOks'k /kukRok fdLks dgrks gS. bLkdk SI Ik) fRk Eka Ekk«kd fYkf[k , \
  - 10- Hkklkdkdz Ikfd ,kk fdLks dgrks gS
  - 11- fuj {kh ,k fLFkFRk Eka fOk | Bk {ksk dh RkhOkRkk vksj fOk | Bk f}/kqk vk?kwkz ds Ek / ,k fdRkUks vâk dk dks k CkUkRkh gS

### Yk?kqnÜkj h,k Ikz Uk

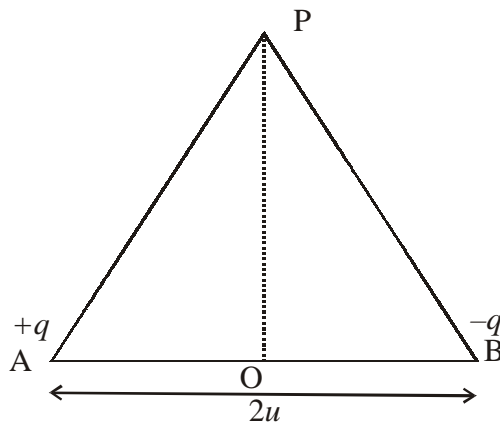
- 1- fLk) dhFTk, fd Ikj kOks| Bk Ekk/ ,kEk dh mlk fLFkFRk Eka Pkkykd dh ÅTkz dEk gks

Tkrrkh gS

- 2- D<sub>3</sub>kk 1 km. f«kT<sub>3</sub>kk ds /kkfRokd Xkks/ks Eka 1 dWkkkE vkOks k LkOkok gS. dkj .k Lk"V dhfTk, \
- 3- fok | Bk fokHkok dh Rkhuk fok' kSkRkk, ; CkRkkb<sub>3</sub>ks
- 4- fLk) dhfTk, fd fuLj {kh<sub>3</sub>k fLFkFRk Eks fok | Bk f}/kqk ds dkj .k fdLkh fCkanqIkj fok | Bk fokHkok dk Ekkuk 'kw<sub>3</sub>k gks Tkrrkh gS

$$\frac{1}{2} \sqrt{FkOkk}^2$$

fPk«k eafCUnqP ij oS| q foHko dk eku Kkr dhft, A

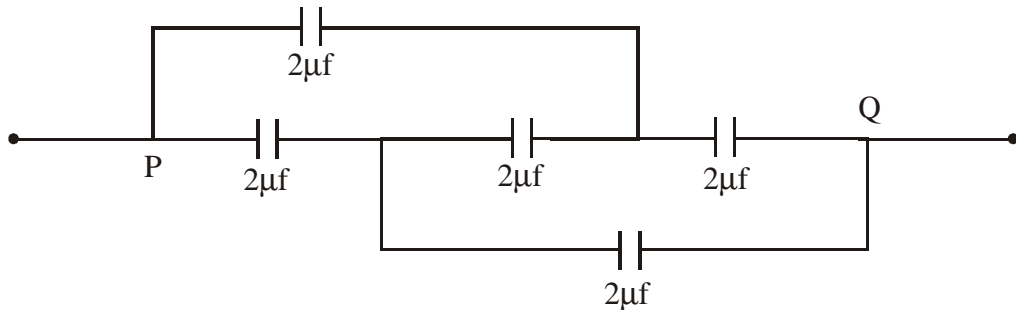


- 5- fLk) dhfTk, fd Ok | Bk f}/kqk ds YkOkk/kZd fLFkFRk Eka fdLkh fCkanqIkj fo | Bk {k«k dh RkhOkRkk dh fn'kk fok | Bk f}/kqk vk?kwkZ ds fokIkjhRk gkRkh gS.
- 6- , d LkEkkRkj IYks/ Lk«kKfj«k ds IYks/ka dh {k«kQYk 20 Lk«kh<sup>-2</sup> RkFkk mUlks CkhPk dh njih 2 fEKEk gS, fn buKds CkhPk dk Ekk/kskEk Okk<sub>3</sub>q gks Rkks Lk«kKfj«k dh /kKfj Rkk KkRk dhfTk, \
- 7- XkkWk IkEksk Lks fCkanqvkOks k ds dkj .k fdLkh fCkanqIkj fok | Bk {k«k dh RkhOkRkk dk Lkwk KkRk dhfTk,
- 8- vkOks' kRk PkkYkd dh ÅTkkZ dh Xk.kUkk mLkdh /kKfj Rkk ds : Ik Eka dhfTk, \
- 9- XkkWk IkEksk Lks Xkks/ks ds vñj fLFkFRk fCkanqIkj fok | Bk {k«k dh RkhOkRkk KkRk dhfTk, \
- 10- , d fok | Bk f}/kqk fTkLkd f}/kqk vk?kwkZ P gS dks , d LkEkkuk fok | Bk {k«k dh RkhOkRkk E Eka j [kk gq/k gS Rkks mLks 180° dks k Lks ?k«kKkUs ds fd<sub>3</sub>ks Xk<sub>3</sub>ks dk<sub>3</sub>kZ dh Xk.kUkk dhfTk, A
- 11- nks /kUkkOks k , d-nLkjs Lks 0-1 EkVj dh njih Ikj fLFkFRk gS RkFkk Oks , d-nLkjs dks

72 U<sub>0</sub> kw/Uk ds CkYk Lks IkfRkdf"KRk dj Rks gS ,kfn nkbkka vkOks kka dk ,kkk 18 EkkbØks dWkkk gks Rkks IkR<sub>3</sub>kd vkOks k dk Ekkuk KKRk dhfTk, \

12- P RkFkk Q ds CkhPk Rky<sub>3</sub>k /kkfjRkk KKRk dhfTk, -

fPk«k-



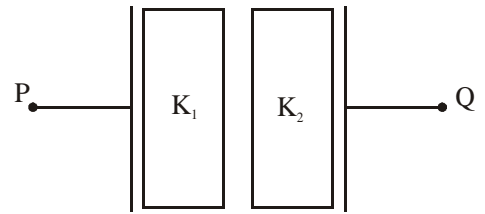
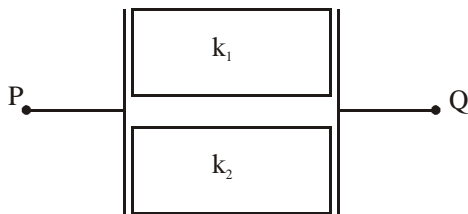
13- ,kfn fdLkh XkWLk<sub>3</sub>kLk Ik"B ds vñj  $8.85 \times 10^{-8}$  dWkkk vkOks k gks Rkks&

- 1- Xkqkjkj Uks OkkYks fok | Bk IYKDLk dh Xk.kukk dhfTk,
- 2- ,kfn XkWLk<sub>3</sub>kLk Ik"B dk f«kT<sub>3</sub>kk nqkqk dj fn<sub>3</sub>kk Tkk<sub>3</sub>ks Rkks fok | Bk IYKDLk ds Ekkuk Eka D<sub>3</sub>kk Ikfj OkRkzk gk«kka

14- fUKEUK fPk«kka Eka Lk«kfkj«k dh Rky<sub>3</sub>k /kkfjRkk KKRk dhfTk, A

fPk«k 1-

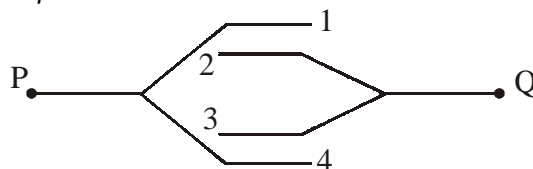
fPk«k 2-



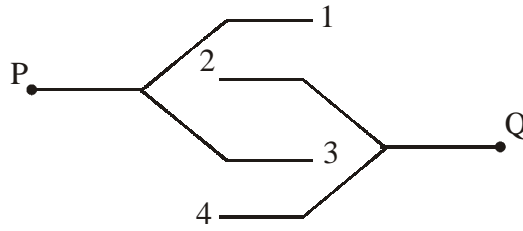
15- ,d LkEkkuk fok | Bk {k«k ds Yk«kOkRk fLFkFRk Eka ,d fok | Bk f}/kqk fTkLkdk f}/kqk vk?kwkz P gS j [kk gq/k gS Rkks mLks  $180^\circ$  dks k Lks ?kqkUks Eka fd<sub>3</sub>ks Xk<sub>3</sub>ks dk<sub>3</sub>kz dh Xk.kukk dhfTk, \

16- UkhPkS fn<sub>3</sub>ks Xk<sub>3</sub>ks fPk«kka Eka /kkRkq dh Pkkj IYks/s nh Xkbz gSA IkR<sub>3</sub>kd dk Ik"Bh<sub>3</sub>k {k«k A gSRkFkk Oks ,d nulkjs Lks d njuh Ikj fLFkFRk g« IkR<sub>3</sub>kd fLFkFRk Eka Rky<sub>3</sub>k /kkfjRkk dh Xk.kukk dhfTk, A

fPk«k 1



fPk«k 2-



**nh?kz mÜkj\_h\_k lk' Uk**

- 1- , d Ckan lk"B Lks Xkq'kj Uks OkkYk fok | Bk ¶YkDLk vksj mLkds vanj mlkFLFRk vkOks'k ds CkhPk Lk«k«k CkRkkUks OkkYks fuL\_kEk dks FYkf [k\_ks vksj mLkdh Lkgk\_kRkk Lks j\_s[kk vkOks'k ds dkj .k fdLkh fCkanq P lkj fok | Bk {k«k dh RkhOkRkk dh Xk.kukk dhFTk, \
- 2- fdLkh fCkanq lkj O lkj , d fCkanq vkOks'k q gSRkks bLkLks\_r njjh lkj fLFkRk fdLkh fCkanq P Rkd , d«d /kukkOks'k dks vÜk«k Lks YkkUks ds fy, fd\_ks Xk\_ks dk\_kz dh Xk.kukk dhFTk, A

**oLrfu"B i'z u**

- 1- fdLkh OkLRkq dh fokHOk dk Ekkik fUkEUK fokHOk dks 'kÜ\_k EkkUkdj dh TkkRkh g«  
(a) PKU«Ekk (b) lkFOkh (c) LkYkz (d) Ek«kYk A
- 2- fok | Bk —{k«k Eka , d«d /kukkOks'k dks , d fCkanq Lks nÜkj\_s fCkanq Rkd Yks TkkUks Eka FTkRkUkk dk\_kz djUkk lkMRkk g« mLks mÜk nkslka fCkanq Rkd Yks TkkUks Eka FTkRkUkk dk\_kz djUkk lkMRkk g« mLks mÜk nkslka fCkanq\_ka ds CkhPk dk \_\_\_\_\_ dgRks g«  
(a) fokHOk (b) TkYk (c) fokHOkkURkj (d) fLFkFRkTk ÅTkz A
- 3- fokHOkkURkj dk Ekk«kd gk«kk g«  
(a) OkkYV (b) TkYk (c) v«k«k (d) , fElk\_kj A
- 4- , d«d /kukkOks'k dks vÜk«k Lks fok | Bk {k«k ds fdLkh fCkanq Rkd YkkUks Eka FTkRkUkk dk\_kz djUkk lkMRkk g« mLks mLk fCkanq dk \_\_\_\_\_ dgRks g«  
(a) fokHOk (b) vXkz (c) fokHOkkURkj (d) fLFkFRkTk ÅTkz
- 5- fokHOk dk fOkeh\_k Lk«k fUkEUK Eka Lks g«  
(a) [ML<sup>2</sup>T<sup>3</sup>A<sup>-1</sup>] (b) [ML<sup>2</sup>T<sup>-3</sup>A<sup>-1</sup>] (c) [ML<sup>2</sup>T<sup>2</sup>A<sup>-1</sup>] (d) [ML<sup>2</sup>T<sup>-3</sup>A]
- 6- fok | Bk {k«k dh RkhOkRkk E vksj fokHOkkURkj V Eka fUkEUK Lk«k«k gk«kk g«  
(a)  $E = \frac{dv}{dx}$  (b)  $V = -\frac{dv}{dx}$  (c)  $E = -\frac{dv}{dx}$  (d)  $E = -\frac{dx}{dv}$

- 7- fók | ðk {kæk dh RkhOkRkk dk Ekk«kd fUKEu g\$-  
 (a) EkhVj@OkkYV (b) OkkYV@EkhVj<sup>2</sup> (c) OkkYV<sup>2</sup>@EkhVj (d) OkkYV@EkhVj A
- 8- LkEkfOkHkOk Ik"B Eka , dkacl /kuk vkOks k dks , d fCkanq Lks mlkj s fCkanq Rkd Yks TkkUks Eka fn<sub>3</sub>kk Xk<sub>3</sub>kk dk<sub>3</sub>kZ dk Ekkuk gkRkk g\$-  
 (a) 1 (b) 'kñ<sub>3</sub>k (c) vUkRk (d) 2
- 9- [kks[kYks XkksYks PkkYkd ds vanj fók | ðk {kæk dh RkhOkRkk gkRkh g\$-  
 (a) 'kñ<sub>3</sub>k (b) 1 (c) vUkRk (D) 2
- 10- 1ev dk Ekkuk fUKEu lknka Eka Lks g\$-  
 (a)  $1.6 \times 10^{-19} \text{C}$  (b)  $1.6 \times 10^{-16} \text{tw}$   
 (c)  $1.6 \times 10^{-19} \text{tw}$  (d)  $1.6 \times 10^{-16} \text{C}$
- 11- fók | ðk /kkfjRkk dk Ekk«kd fUKEu Eka Lks g\$-  
 (a) OkkYV (b) QjM (c) ,sElk<sub>3</sub>kj (d) vkEk A
- 12- fók | ðk /kkfjRkk dk fOkeh<sub>3</sub>k Lkwk fUKEu Eka Lks g\$-  
 (a)  $[M^{-1}L^{-2}T^4A^2]$  (b)  $[ML^{-2}T^4A^2]$  (c)  $[M^{-1}L^2T^{-4}A^2]$  (d)  $[M^{-1}L^{-2}T^{-4}A^2]$
- 13- S.I. lk) frk Eka XkksYkh<sub>3</sub>k PkkYkd dh /kkfjRkk dk Lkwk fUKEUk Eka Lks g\$-  
 (a)  $C = 4\pi \epsilon_0 r$  (b)  $C = \frac{1}{4\pi \epsilon_0 r}$  (c)  $C = \frac{r}{4\pi \epsilon_0}$  (d)  $C = \frac{4\pi \epsilon_0}{r}$
- 14- fók | ðk 'khykRkk dk S.I. lk) frk Eks Ekk«kd g\$-  
 (a) EkhVj@QjM (b) QjM@EkhVj  
 (c) OkkYV@EkhVj (d) QjM@OkkYVA
- mRrjeyk&** 1- (b) 2- (c) 3- (a) 4- (a) 5- (b) 6- (c) 7- (d) 8- (b) 9- (a) 10- (c)  
 11- (b) 12- (a) 13- (a) 14- (b)

### cgfodYi izu

- 1- Xkkñk<sub>3</sub>k Ik"B ds Ckkgj fLFkj vkOks k ds fyk, fók | ðk IYKDLk dk Ekkuk gkRkk g\$-  
 (a)  $\frac{q}{\epsilon_0}$  (b)  $\epsilon_0 q$  (c) 0 (d) buea l s dkbZ ugha



- 2- f) /kqk {k&k ds Yk&kOkRk fLFkRk Ik" B Lks XkqTj Uks OkkYkh fok | Bk IYkDLk dk eku gk&kk g\$
- (a) 'kq; (b) E.ds (c)  $\frac{E}{ds}$  (d)  $\frac{q}{A}$
- 3- Xk&ykh, k PkkYkd ds v&j fokHkOk dk Ekkuk gk&kk g\$
- (a) 'kq; (b) Ck&â, k Ik" B ds fokHkOk ds Ckj kCkj (c) qC (d) bukEka Lks dkbZ UkghA
- 4- fdLkh Xk&ykh, k PkkYkd dh /k&j Rkk dk CGS Ekkuk gk&kk g\$
- (a)  $r^2$  ds LkEkkuk&kRkh (b) f&kT, kk r ds Ckj kCkj (c) f&kT, kk r ds O, k&ØEkkuk&kRkh (d) bukEka Lks dkbZ UkghA
- 5- fdLkh Lk&k&j «k ds CkPk Ij kOkS | Bk j [kUks Ij /k&j Rkk dk Ekkuk I&j OkfRk&k gk&kk—
- (a) ?kVRkk g\$ (b) Ck<Rkk g\$ (c) dkbZ Ik&kOk Ukgha IkVRkk g\$ (d) bukEka Lks dkbZ Ukgha
- 6- LkEkk&j ØEk Eka I&Rkj&k dk Ekkuk I&j OkfRk&k gk&kk g\$
- (a) ?kVRkk g\$ (b) Ck<Rkk g\$ (c) dkbZ Ik&kOk Ukgha IkVRkk g\$ (d) bukEka Lks dkbZ Ukgha
- 7- fok | Bk vIk?kV, k dk RkkIk Ck<Uks Ij PkkYkdRkk dk Ekkuk—
- (a) Ck<Rkk g\$ (b) dEk gk&kk g\$ (c) dkbZ Ik&kOk Ukgha IkVRkk g\$ (d) bukEka Lks dkbZ Ukgha
- 8- fUj {kh, k fLFkFk Eks fok | Bk {k&k dh RkhOkRkk v{kh, k fLFkFk dh RkYkUk Eka gk&kh g\$
- (a) nk&k&kh (b) vk/kh (c) Ckj kCkj (d) bukEka Lks dkbZ Ukgha
- 9- , d Lk&kh f&kT, kk ds /k&Rq ds Xk&yks dks , d dYk&k v&ks k n&ks Ij mRikUk fok | Bk {k&k dh RkhOkRkk dk Ekkuk gk&kk
- (a)  $3 \times 10^6$  N/C (b)  $9 \times 10^{13}$  N/C (c)  $8.86 \times 10^{-11}$  N/C (d)  $9 \times 10^9$  N/C
- 10- 10 Ekkb&ks&M /k&j Rkk OkkYks fdLkh PkkYkd dk fokHkOk 250 Okk&V g\$ bLk PkkYkd Eka mIkfLFkFk v&ks k dk Ekkuk gk&kk —
- (a)  $2.25 \times 10^{-6}$  dYk&k (b)  $18 \times 10^8$  dYk&k  
(c)  $25 \times 10^{-10}$  dYk&k (d) bukEka Lks dkbZ UkghA

m&kj EkkYk—1. (c) 2. (b) 3. (b) 4. (b) 5. (b) 6. (a) 7. (a) 8. (b) 9. (b) 10. (c)

bdkbz-4

mfpkrk Lkākāk TkkšM,ks

	V		Ck
1-	, d dīvkkkk vkōs'k Eka bYkōVrkkā dh Lkā, kk	(a)	, d
2-	Ok, kq dk Ij kōkS  Bkkād k dk Ekkuk gkBkk gS	(b)	$6.25 \times 10^{18}$
3-	$\epsilon_0$ dk Ekkuk gS	(c)	$1.6 \times 10^{-19}$ dīvkkkk
4-	Ekwk vkōs'k dk Ekkuk gS	(d)	$8.9 \times 10^{-12}$ dīvkkkk@ U, kw/uk Ekh
5-	/kuk vkōs' krk djUks Ij OkLRkq dk Hkkj	(e)	1 gkBkk gA
6-	/kkRkq dk Ij kōkS  Bkkād	(f)	$\frac{2P}{4\pi \epsilon_0 r^3}$
7-	fok   Bk ĀTkkz dk Ekkēkd	(g)	$q.2l$
8-	ōkS  Bk f}/kōk dh f}/kōk vk?kwkz	(h)	?kVRkk gS
9-	v{kh, k fLFkFRk Eka f}/kōk ds dkj. k RkhōkRkk	(i)	bYkōVrkk OkkšV
10-	Ok, kq dk Ij kōkS  Bkkād	(j)	vUkk gkBkk gA

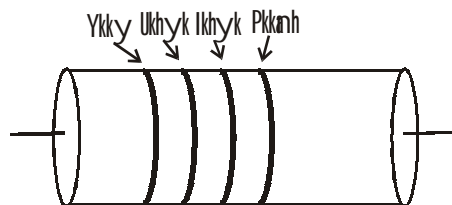
mRRkj EkkYkk – 1. (b) 2. (a) 3. (d) 4. (c) 5. (h) 6. (j) 7. (i) 8. (g) 9. (f) 10. (e)

# bdkbZ –5

## /kkjk fok | bk

### vfRk Yk?kqRRkj h,k Ikz Uk

- 1- TkCk IkfRkj kskka dks LkEkkBkj ØEk Eka Tkk&Mk TkkRkk gS Rkks Rky,k IkfRkj ksk dk Ekkuk dEk gks TkkRkk gS D; ka
- 2- TkCk IkfRkj kskka dks Js kh ØEk Eka Tkk&Mk TkkRkk gS Rkks Rky,k IkfRkj ksk dk Ekkuk Ck< TkkRkk gS D; ka
- 3- vfRkPkkYkdRkk ds dkbZ nks mlk,kk&k fykf[k, \
- 4- dkCkZk IkfRkj ksk ds Ok.Z dkM Eka «kfV LkHEkk (Tolerance) Lks D,kk LkEkÖRks gS bLks fdLkEka O,kDRk dj Rks gS
- 5- dkCkZk IkfRkj ksk ds Ok.kz dkM Eka IkfEk Rkhuk CkSM dks LkEkÖkkb,k
- 6- vjS[kd IkfRkj ksk Lks vkk D,kk LkEkÖRks gS mngj.k nhfTk, \
- 7- fok | bk Okgd CkYk dk SI Ik) fRk Eka Ekk<kd vksj fokh,k Lk&k fykf[k, \
- 8- vUkk&Ekuk Ok&k Lks D,kk LkEkÖRks gS bLkd Ekkuk YkXkHkXk fdRkUk gk&k gS
- 9- Lk&k dk fok | bk Okgd CkYk Lknsk mLkds VFEkZkYk fokHkOkkURkj Lks vf/kd gk&k gS dkj.k fykf[k, \
- 10- fn,ks Xk,ks fPk<k Eka dkCkZk IkfRkj ksk dk Ekkuk KkRk dhfTk, \



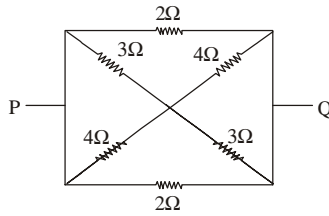
- 11- Lk&kks dk vkkfjd IkfRkj ksk Ck&,k IkfRkj ksk Lks vf/kd gk&ks Ikj mUga dksk Lks ØEk Eka Tkk&Ukk YkHkdkjh gS

### Yk?kqRRkj h,k Ikz Uk –

- 1- dEk RkkIk Ikj fdLkH lknkFkZ dh IkfRkj kskdRkk ds , dk, d 'k&,k gk&ks dh ?kVUkk dks D,kk dgRks gS

- 2- IkfRkjksk Lks vkk D<sub>3</sub>kk LkEkÖkRks gS bLkdk SI Ekk«kd , Oka fOkHkh<sub>3</sub>k Lk«k fYkf[k, \
- 3- fdLkh PkYkd dk fok'k"V i frjksk fdLk–fdLk Ij fukHkj djRk gS Ok.kk dhfTk, \
- 4- fdLkh Rkj dh /kkRq dk IkfRkjksk Rkik Xqkkad fdLks dgrks gS bLkdk Ekk«kd fYkf[k, \
- 5- D<sub>3</sub>kk dkj.k gS fd v) PkYkdka dk IkfRkjksk Rkik Xqkkad \_\_.kkREkd gkRk gS
- 6- D<sub>3</sub>kk dkj.k gS fd fok | Bk vIk?kV<sub>3</sub>-kka dk IkfRkjksk Rkik Xqkkad \_\_.kkREkd gkRk gS
- 7- mngj.k nBks gq fLk) dhfTk, fd tc R<sub>1</sub>, R<sub>2</sub> vkj R<sub>3</sub> dks Js kh ØEk Eka TkkMk TkkRk gSRks Rk<sub>3</sub> IkfRkjksk dk Ekkuk bukEa vf/kdRke IkfRkjksk OkYks IkfRkjksk ds Ekkuk Lks vf/kd gkRk gS
- 8- mngj.k nBks gq fLk) dhfTk, fd TkCk vYkXk–vYkXk Ekkuk OkYks R<sub>1</sub>, R<sub>2</sub> vkj R<sub>3</sub> dks LkEkkRkj ØEk Eka TkkMk TkkRk gSRks Rk<sub>3</sub> IkfRkjksk dk Ekkuk bukEa TkkMk X<sub>3</sub>ks U<sub>3</sub>kkRkE IkfRkjksk OkYks IkfRkjksk ds eku Lks dEk gks TkkRk gS
- 9- fPk«k ds }kj LkEkÖkkb<sub>3</sub>ka fd fdjPkkM dk f}Rkh<sub>3</sub>k fuk<sub>3</sub>Ek ÅTkkz Lkj {k.k ds fuk<sub>3</sub>Ek ds vUkqPw gS Rfkk<sub>3</sub>kg Hkh OkRkb<sub>3</sub>ksfd<sub>3</sub>kg fuk<sub>3</sub>Ek fdLk IkJkFk ds fYk, LkR<sub>3</sub>k gS
- 10- fLk) dhfTk, fd fdjPkkM dk IkfRkjksk fuk<sub>3</sub>Ek vkoksk Lkj {k.k ds fLk) kRk ds vUkqPw gS
- 11- Lk<sub>3</sub> dk vkRfjd IkfRkjksk fdLks dgrks gS<sub>3</sub>kg fdUk–fdUk dkjdka Ij fukHkj djRk gS
- 12- fLk) dhfTk, fd TkCk fdLkh Lk<sub>3</sub> Eka /kjk Ykh TkkRk gSRks Lk<sub>3</sub> ds fLk)ka ds CkPk dk fOkHkOkkRkj dEk gks TkkRk gS
- 13- fOkHkOkkRk vkj OkYVEkhVj Eka dkOk JSB gS vkj D<sub>3</sub>kk
- 14- Xk.kukk }kj fLk) dhfTk, fd Lk<sub>3</sub>ka dks Js kh ØEk Eka mLk LkE<sub>3</sub>k TkkMk TkkRk gS TkCk Lk<sub>3</sub>ks dk vkRfhd IkfRkjksk Ck<sub>3</sub> IkfRkjksk dh Rk<sub>3</sub>kukk Eka Uk<sub>3</sub> gkRk gS
- 15- Xk.kukk }kj fLk) dhfTk, fd Lk<sub>3</sub>ka dks LkEkkRkj ØEk Eka mLk LkE<sub>3</sub>k TkkMk TkkRk gS TkCk Lk<sub>3</sub>ka dk vkRfjd IkfRkjksk Ck<sub>3</sub> IkfRkjksk dh Rk<sub>3</sub>kukk Eka vf/kd gkRk gS
- 16- , d Rkj dk IkfRkjksk 20 EkhVj gS bLks , d OkRRk ds : Ik Eka TkkMk X<sub>3</sub>kk gS bLkds fdLkh Hkh O<sub>3</sub>kkLk ds fLk)ka ds CkPk Rk<sub>3</sub> IkfRkjksk dh Xk.kukk dhfTk, \

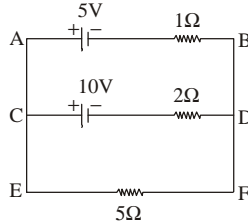
17- Lkxuk fpekka Eka P vsj Q ds Chpk Rky, k lfrkjksk Kkrk dhftk, &



18- Rkkik ck<kuks lkj fekj /krrk/ka vsj fok | bk vlt?kv, kka dh lfrkjkskdrrk Eka D, kk lkkkkok lkmrrk gS fpekka }kj k lknf' kRk dhftk, \

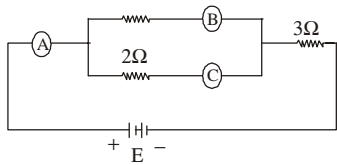
nh?kz mRRkj h, k lkz uk -

1- fdjPkkW ds fuk, kEka dk ml, kkkk djRks gq fn, ks Xk, ks lkj lkFk Eka lR, ksd lkFk Eka lkkkfgRk fok | bk /kkj k dk Ekkuk Kkrk dhftk, -



2- UkhPks fn, ks Xk, ks lkj lkFk Eka A, B vsj C vEkhVj gSA, jfn B dk lkbî kad 1-0A gS Rkks fukEu dh Xk. kukk dhftk, -

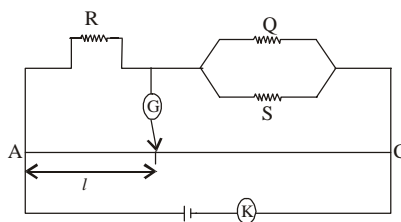
- 1- A vsj C vEkhVj dk lkbî kad D, kk gS
- 2- lkj lkFk dk dyk lfrkjksk D, kk gS
- 3- lkj lkFk Eka YkXks Lkyk dk fok-Okk-ckYk D, kk gS



3- EkPRk bYkDVRUKka ds vk/kkj lkj fLk) dhftk, fd lfrkjksk R fukEuK lkj fukhkj djRkk gS

- 1- PkkYkd dh Ykakkbz ds vukPekkuKkkRkh gkRkk gS
- 2- PkkYkd ds vukPekkuKkkRkh dkV ds {ksek ds 0, kRkPekkuKkkRkh gkRkk gS
- 3- PkkYkd ds lknkfkz dh lknf' kRk lkj
- 4- PkkYkd ds Rkkik lkj

- 4- L<sub>2</sub>/kka ds fEkfJRK ØEK LkEkmgUk ds fYk, fLk) dhfTk, fd Ckã,k IkfjIkFk Lks Ikkkfgrk /kkjk RkCk vf/kdRkEk gkRkk gS TkCk LkEkmgUk dk dYk vkRkfjd IkfRkjksk Ckã,k IkfRkjksk ds RkY,k gkã vf/kdRkEk /kkjk ds fYk, O,kãkd Hkh KkRk dhfTk, A
- 5- Ik<sub>2</sub>ksx'kkYkk Eka nks IkfFkEkd L<sub>2</sub>/kka ds fOk | Bk Okgd CkYkka dh RkYkUkk djUks dh fOkf/k dk Ok.kkZk fUkEukkãdRk fCkmg ds vk/kkj Ikj dhfTk, -
- 1- Ik<sub>2</sub>kDkRk fOk | Bk IkfjIkFk
  - 2- fLk) kRk Lkuk
  - 3- Ikqk.k Lkj .kh
  - 4- dkbz nks LkkOk/kkfUk,kk;
- 6- OghV LkRkq ds fLk) kRk Ikj vk/kkfjRk mlkdj.k }kjk fdLkh /kkRkq ds fOkf'k"V IkfRkjksk KkRk djUks ds fOkf/k dk IkfjIkFk LkfgRk Ok.kkZk djRks gq O,kãkd LFkfkfRk dhfTk,
- 7- fUkEukkãdRk IkfjIkFk Eka LkRkYkUk fCkmg dh Ykãkkbz KkRk dhfTk, \
- 1- EkhVj LkRkq dh dk,kkZk kkYkh LkEkÖkkb,ks
  - 2- fn<sub>2</sub>ks Xk<sub>2</sub>ks IkfjIkFk Eka 'kU,k fOk{kSk fLFkFRk IkfRkjksk R fn<sub>2</sub>ks Xk<sub>2</sub>ks IkfjIkFk ds LkFk Ikj IkfRk gkRkh gã ,fn IkfRkjksk S ds LkFk LkEkRkjk ØEk Eks q d IkfRkjksk Q Tkãd/ fn<sub>2</sub>kk TkRkks gSRkks 'kU,k fOk{kSk fLFkRk I<sub>2</sub> Ikj LFkfkfRk gkS TkRk gã Q dk EkkUk S RkFk I<sub>1</sub> o I<sub>2</sub> ds lknka Eka KkRk dhfTk, \



**fjDRk LFkkUkka dh IkFRkz dhFTk, -**

- 1- vkOks'k dk fOHHkh<sub>2</sub>k Lk<sub>2</sub> ———gA
- 2- ,kfn fdLkh dkCkZk IkFRkjks'k Eka ØEk'k% IkHYkkj CkZkUkh RkFkk Hkj'k CkSM gks Rkks mLkdK IkFRkjks'k ———vkEK gkZkk A
- 3- /kkRkq/ka Eka bYkDVRIUkka dk JhFRkdKYk Rkktk ds Ck<Uks Ikj ———gkZkk gA
- 4- fok | Bk {ksk dh mlkFLFRk Eka bYkDVRIUkka dk IkFk ———gkZkk gA
- 5- fOHHkOEkKkikh ds RkKj dh YkZkkbz fuk<sub>2</sub>krk O<sub>2</sub>kkLk dks Ck<k nBks Ikj fOHHkO Ek.kRkk ———gks TkkRkh gA
- 6- bYkDVRIUkka dk vUkZkEKUk OZk ——— dkfV dk gkZkk gA
- 7- RkKka ds , d RkKj Eka 1mA /kkj IkZkkfgrk gks jgh gS fdLkh fCknq Lks 1 sec. ea ——— bYkDVRIUk Xkq'kjZkA
- 8- vFRk PkYkd IknkFkZ Eka fok | Bk /kkj ———ds dkj.k IkZkkfgrk gkZkh gA  
**mRRkj** 1. M°L°AT 2. 470 vke 3. de 4. oØh; 5. c<+ 6. 10<sup>-4</sup> m/sec.  
 7- 6.25×10<sup>15</sup> 8- bYkDVRIUk ,kZEk A

**OkLRkqUk" B IkZ Uk**

- 1- fok | Bk Okgd CYk dk EkkZkd fUkEuk ds RkY<sub>2</sub>k Ukgha gS-  
 (a) OkYV (b) Tkwk@dWkkk (c) U<sub>2</sub>kw/Uk@dWkkk (d) OkV@, fElk<sub>2</sub>kj
- 2- Rkktk Ck<kUks Ikj fok | Bk vIk?kV<sub>2</sub>-kka dk PkYkdRk Ck< TkkRk gS D<sub>2</sub>kkfd  
 (a) vIk?kV<sub>2</sub> ka dh ' ,kkURk Ck< TkkRkh gA  
 (b) vIk?kV<sub>2</sub> ka dh ' ,kkURk dEk gks TkkRkh gA  
 (c) vIk?kV<sub>2</sub> vUkOks'krk gkZkk gA  
 (d) vIk?kV<sub>2</sub> vIkfjOkFRk jgrk gA
- 3- EkkUk 'kj' dk IkFRkjks'k gkZkk gS-  
 (a) 5kΩ (b) 7kΩ 1(c) 10kΩ (d) 8kΩ
- 4- IkFkFkd IkFRkjks'k EkZkUkhu ds CkUk<sub>2</sub>ks TkkRks gS D<sub>2</sub>kkfd —  
 (a) bLkd fok'k"V IkFRkjks'k dEk gkZkk gA

- (b) fof' k"V Ikrkjksk vf/kd gkdk gA
- (c) fof' k"V Ikrkj/k Ij fukHkj Ugha djRkk gS
- (d) buEka Lks dkbZ Ugha

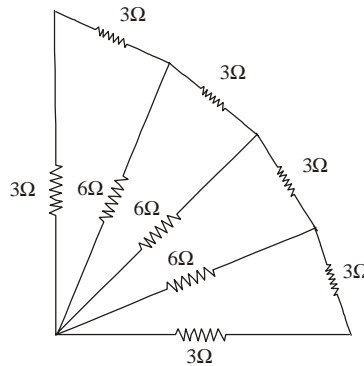
5- fdLkh Rkkj dk {kskQYk Ikrkjksk djUks Ij Ikrkjksk YkdkbZ ds LkkFk Ikrkjksk gkdk gS-

- (a)  $r \propto l$  (b)  $r \propto l^2$  (c)  $r \propto \frac{1}{l}$  (d)  $r \propto \frac{1}{l^2}$

6- 1 EkhVj Ykdk RkFk 0-4 Ekh 0, kLk dk Ikrkjksk 2 vkEk gA bLkdh IkrkjkskdRkk gkdkh-

- (a)  $2.5 \times 10^{-10} \Omega m$  (b)  $2.5 \times 10^{-7} \Omega m$  (c)  $1.7 \times 10^6 \Omega m$  (d) buEka Lks dkbZ Ugha

7-



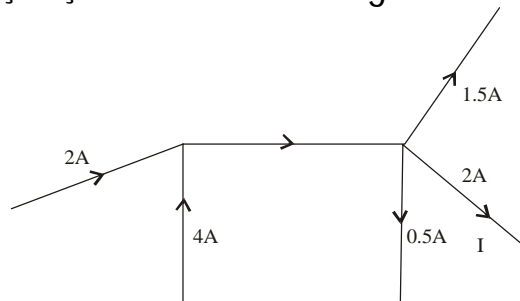
mIjkdRk fPkEk Eka Ikrkjksk dk EkkUk gkdkh-

- (a)  $5\Omega$  (b)  $6\Omega$  (c)  $3\Omega$  (d)  $2\Omega$

8- , d PkYkd Ikrkjksk (a) 0-25 vkEk gS Rkks mLkdh fdk | Bk PkYkdRk gkdkh A

- (a) 0-25 (b) 2-5 vkEk (c) 4 vkEk (d) 25 vkEk

9- fn,ks Xk,ks fPkEk Eka I dk EkkUk gkdkh-



- (a) 1, fElk,kj (b) 3, fElk,kj (c) 5, fElk,kj (d) 2, fElk,kj



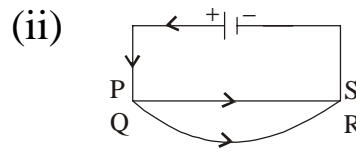
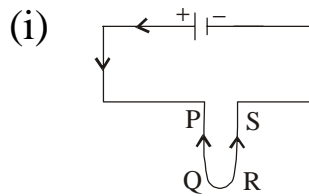
- 10- IkfRkj k'sk Rkkik Xkq kkaed \_\_.kkREkd gkRkk gS-
- (a) /kkRkq (b) v/kkRkq (c) v) PkkYkd lknkFkZ dk (d) bukEka Lks dkbZ Ukgha
- 11- ,d Rkkj dks dkVdj mLkdh YkakkbZ vk/kh dj na Rkks mLkds IkfRkj k'sk Ikj IkHkkOk IkMxkk-
- (a) IkfRkj k'sk Ck< Tkk,kxkk
- (b) IkfRkj k'sk Ikj dkbZ IkHkkOk Ukgha IkMxkk
- (c) IkfRkj k'sk dEk gks Tkk,kxkk
- (d) bukEka Lks dkbZ Ukgha
- mRRkj – 1. (c) 2. (b) 3. (c) 4. (b) 5. (b) 6. (b) 7. (d) 8. (c) 9. (d) 10. (c)

## bdkbZ 06

### fOk | Bk /kkjk ds IkHkkOk

#### vFRk Yk?kqRRkj h,k Ikz u

- 1- fOk | Bk /kkjk ds D<sub>3</sub>kOkgkfjd Ekk«kd Lks D<sub>3</sub>kk LkEkÖRks gS
- 2- PkYk dqMYk /kkjkEkkikh ds Ek<sub>3</sub>k UKkZ YkkgS dk VpIMk Ukgha j [kUks Ikj mLkdK D<sub>3</sub>kk IkHkkOk IkMRkk gS
- 3- PkqCkdh<sub>3</sub>k {ksek vkj fOk | Bk {ksek nksBkka gh ,d vkOks' rRk d.k dks fOk{kSIRk dj Rks gS nksBkka Eka D<sub>3</sub>kk vBkj gS
- 4- LIk' kZ<sub>3</sub>kk /kkjkEkkikh dh dFEk<sub>3</sub>kka fYkf[k, \
- 5- D<sub>3</sub>kk dkj.k gSfd Ykalk IkfjUkFYkdK ds dæ RkFkk VkjkbM ds dæ Ikj PkqCkdh<sub>3</sub>k {ksek dh RkhORkk ,d LkEkuk gkRkh gS
- 6- ¶YkSEkZk ds CkkUks gkFk dk fUk<sub>3</sub>kEk fYkf[k, RkFkk mLk nks mlkdj.k dk UkEk fYkf[k, fTKLEka bLkdK ml<sub>3</sub>kkk fd<sub>3</sub>kk TkkRkk gS
- 7- D<sub>3</sub>kk LkbbDYkks/RUk ds }kj k fdLkh /kUkOks' rRk d.kka dh PkYk dks vLkhtFEkRk Ck<k<sub>3</sub>kk Tkk LkdRkk gS dkj.k LkfgRk LIk"V dhfTk, \
- 8- fPk«k Eka PQ vkj RS nks Rkkj ,d CkS/jh ds LkFk TkkM/dj nks Ikdkj Lks YkVdk<sub>3</sub>ks Xk<sub>3</sub>ks gS mUkdh fLFkFRk Ikj D<sub>3</sub>kk IkHkkOk IkMxk\



- 9- D<sub>3</sub>kk dkj .k gS fd LkkbDYkks/Rkk }kj k bYkDVkk dks ROkfjRk Ukg ha fd<sub>3</sub>kk Tkk LkdRkk gS
- 10- fdLkh vkOks' kRk d .k ds OkRRk<sub>3</sub>k EkkXkz Eka XkFRk ds fyk, vkOks' kd 'kRkZ fykf [k, \
- 11- <sub>3</sub>kfn /kkj kEkkikh ds LkkFk LkEkkRkj ØEk Eka mPp IkFRkjksk dks TkkMk Tkk<sub>3</sub>ks Rkks /kkj kEkkikh Ij D<sub>3</sub>kk IkHkkOk IkM<sub>3</sub>kk \
- 12- <sub>3</sub>kfn /kkj kEkkikh ds LkkFk Js kh ØEk Eks dEk IkFRkjksk dks TkkMk Tkk<sub>3</sub>ks Rkks /kkj kEkkikh Ij D<sub>3</sub>kk IkHkkOk IkM<sub>3</sub>kk \
- 13- <sub>3</sub>kfn Ekd<sub>3</sub>k /kkj k dk 10 OkkWHkkXk /kkj kEkkikh Lks IkokfgRk djUkk Pkkgrks gS Rkks 'k. V ds IkFRkjksk dk Ekkuk fdRkUkk gkBlk Pkkfg, A
- 14- 5 fdYkks-OkkW ?k. V k dk Ekkuk TkWk Eks IkfjOkFRkRk dhFTk, \
- 15- FkEkkkbbYk Eks , .VhEkUk-fOkLEkFk /kkRkq dk gh Ikzkkk djRks gS D<sub>3</sub>kk
- 16- Lkhd Xkqkkad Lks vkIk D<sub>3</sub>kk LkEkORks gS Lkuk fykf [k, \
- 17- , sEIk<sub>3</sub>kj ds vURkjzVh<sub>3</sub>k dks IkfjHkkf"Rk dhFTk, \
- 18- Q<sub>3</sub>kMs fuk<sub>3</sub>kRkkad Lks vkIk D<sub>3</sub>kk LkEkORks gS
- 19- M<sub>3</sub>Uk<sub>3</sub>kYk LkYk Eka IkzkkRk fOkfHkUk HkkXkka ds UkkEk fykf [k, \
- 20- YksDYkKkWh LkYk Eka IkzkkRk fOkfHkUk HkkXkka ds UkkEk fykf [k, \

**Yk?kqRRkj h<sub>3</sub>k Ikz Uk -**

- 1- D<sub>3</sub>kk dkj .k gS fd LIk'kZ<sub>3</sub>kk /kkj kEkkikh dh RkYkUkk Eka PkYk dqMYk /kkj kEkkikh }kj k /kkj k UkkUkk mfPRk gkBlk gS
- 2- fdLkh fLIk<sub>3</sub>kk ds , d Nkj Lks /kkj k IkokfgRk djRks gSRkks mLk Ij D<sub>3</sub>kk IkHkkOk IkM<sub>3</sub>kk \ IkzkkXkd Ikn'kzk }kj k Iknf'kRk dhFTk, A
- 3- Pk<sub>3</sub>Okdh<sub>3</sub> {k<sub>3</sub> Eka fdLkh dqMYk dks j [kdj /kkj k IkokfgRk djUks Ij mLk Ij gkBlk OkkYs IkHkkOk ds fyk, O<sub>3</sub>k<sub>3</sub>kd LFkfkRk dhFTk, \
- 4- D<sub>3</sub>kk nks LOkRk<sub>3</sub>k vkOks' k LkEkkRkj j<sub>3</sub>[kkvka Eka XkFRk dj LkdRks gS dkj .k LkfgRk LIk"V

dhfTk, \

- 5- z Ykakkbz dk , d Rkkj fTKLk lkj I /kkjk IkakkfgRk gks jgh gSB RkhORkk OkkYks PkqCkdh,k {ksek Eka fLFkRk gSA Rkkj lkj D,kk IkHkkOk IkVkkkA vkOk' ,kd O,kkTkd LfkkfIRk dhfTk, \
- 6- LkhLkk LkPkk,kd LkYk ds IkwkZ vkOks kuk RkFkk fukj kOks kuk ds LkEk,k fok | Pk Okkgd CkYk dk Ekkuk Kkrk dhfTk, \
- 7- nks fokfHkUk /kkjkvka dks TkkM/dj fok | Pk /kkjk IkakkfgRk djUks lkj nkskka fLkjk ka lkj RkkIKkURkj mRIkUk gks TkkRkk gSA D,kka
- 8- , d Rkkik ,kqEk dh Bm/h Lkq/k dk Rkkik 20°C gSA RkFkk XkEkZ Lkq/k dk Rkkik 0°C gSA Rkkik fok | Pk Okkgd CkYk fUkEuk LkEkhdj .k }kjk O,kDRk gkRkk gSA  $E = \alpha\theta - \beta\theta^2$  ; fn  $\alpha = \mu v/^\circ c$  rFkk  $\beta = 0.035\mu v/^\circ c^2$  gks Rkks mnkLkhuK Rkkik RkFkk O,kqØEk Rkkik dh Xk.kukk dhfTk, \

**nh?kz mRRkj,h,k Ik' Uk**

- 1- , Lkh dkk Lkh vkdfUk gS fTKLkds dæ lkj PkqCkdh,k {ksek dh RkhORkk  $B = \mu_0 nI$  gkRkh gSA Ck,kks LkqVZ ds fuk,kEk Lks mRIkUk dhfTk, A
- 2- /kukkOks' kRk d.kka dks ROkfjRk djUks OkkYks mkdj.k dk Ok.kzk fUkEuk 'kh"kdka ds vURkXkRk dhfTk, -  
 1- UkkekfdRk fPk«k 2- dk,kZOkf/k 3- LkKhEk,kkA
- 3- fUkYkqCkRk dqMYkh /kkjEkklkh }kjk fok | Pk /kkjk Kkrk djUks ds Ik,kk«k dk Ok.kzk fUkEuk 'kh"kdka Eka dhfTk, -  
 1- UkkekfdRk fPk«k 2- Lk«k dh LfkkIkUk 3- /kkjEkklkh dh LkqkfgRk A
- 4- , d /kkjEkklkh Eka fTKLkdk IkRkjks'k 100 vkEk gSA 0-02 , fEIk,kj dh /kkjk Lks IkwkZ fok{ksk vkRkk gSA bLk /kkjEkklkh dks 10 , fEIk,kj /kkjk UkkIkUks OkkYks vEkhVj ds : Ik Eka bLRkEkYk djUks ds fYk, fdRkUks vkEk ds 'kq/ dh vkOk' ,kdRkk gk«kh A bLks 10 OkkYV IkjkI ds OkkYVEkhVj Eka dLks CknYk«kA
- 5-  $\frac{1}{2}$  LkhCkd Js kh dh fok' kSkRkk, j fYkf [k, \  
 $\frac{1}{2}$  FkEkLkUk IkHkkOk fdLks dgRks gSA /kukkREkd , Oka\_\_ .kkREkd FkEkLkUk IkHkkOk dk Ok.kzk dhfTk, \
- 6- jTkrk OkkYV EkhVj dk Ok.kzk fUkEuk 'kh"kdka ds vURkXkRk dhfTk, -  
 1- UkkekfdRk jS[kkfPk«k 2- CkUkkOkV 3- dk,kZOkf/k A

## OkLRkqUk" B Ikz Uk

### CkgqOkdYIkh,k Ikz Uk –

- 1- nks CKYck FTkUkEks Lks lkr,kd 60 OkkV dk gS LkEkkrkj ØEk Eka TkkM/s Xk,ks gS Lkqkkk dh dYk 'kFDRk fdRkUks OkkV' dh gkxkh –  
(a) 60OkkV (b) 120OkkV (c) 80 OkkV (d) bukEka Lks dkbZ UghA
- 2- 8-4 vKkK IkFRkjksk Eka 2 , fElk,kj dh /kkjk 5 fEkUkV Rkd IkKkfgRk djUks lkj fdRkUkh m"EkK mRlUkUk gkxkh –  
(a) 2000 dYkkjh] (b) 2200 dYkkjh (c) 2400 dYkkjh (d) 2600 dYkkjh A
- 3- fok | Bk ÅTkkZ dk 0,kkkgfjd Ek«kd gkBkk gS-  
(a) fdYkkSkkV@?k.Vk (b) fdYkkSkkEk (c) OkkV (d) bukEka Lks dkbZ UghA
- 4- RkkIk oS| Bk Ikqk dk mlk,kkxk gkBkk gS-  
(a) fn'kk EkkIkUk (b) RkkIk EkkIkUk (c) ÅTkkZ EkkIkUk] (d) bukEka Lks dkbZ UghA
- 5- ?kjks Eka CKYck RkFkk vU,k fok | Bk mlkdj .k TkkM/s TkkRks gS-  
(a) fEkfJRk ØEk (b) Js khØEk (c) LkEkkrkjØEk (d) bukEka Lks dkbZ UghA
- 6- mnkLkhUk RkkIk lkj fok | Bk Okkgd CKYk dk EkkUk gkBkk gS-  
(a) lkrBk (b) nLk] (c) vf/kdRkEk] (d) U,kkkRkEkA
- 7- RkkEkz OkkSVEkhVj Eka fokYk,kUk Hkj k gkBkk gS-  
(a) vEkksUk,kEk DYkkj kbM (b) EkxUkhTk vkDLkkbM  
(c) dkWkj LkYQs/ (d) LkkfM,kEk DYkkj kbM A
- 8- Lkk/kkj .k dk,kk ds fYk, lkkEkf.kd LkYk ds : lk Eka mlk,kkxk fd,kk TkkRkk gS-  
(a) Lkrkk,kd LkYk (b) 'kqd LkYk  
(c) YkdYkka kh LkYk (d) MsUk,kYk LkYk A
- 9- QSkMs ds f}Rkh,k fuk,kEkka ds vUk,kkj bYkDVRM Eka TEkk gq RkRok dk æ0,kEkkuK LkEkkuKkkRkh gkBkk gS-  
(a) LkqkTkdRkk (b) lkj Ekk.kq æ0,kEkkuK (c) æ0,kEkkuK Okk (d) lkj Ekk.kq æ0,kEkkuK

10-

fdLkh bYkDVkM lkj , d XkkEk RkY\_kkad RkROk ds TkEkk gkBlks ds fYk, vkOk' ,kd fok | Bk Ekk«kk gkBlkhs gS-

- (a) , d , fElk,kj (b) 96000 , fElk,kj (c) 96500 Qj kMs (d) 96000 dWkkt A  
 mRRkj EkkYkk—1- (b) 2- (c) 3- (a) 4- (b) 5- (c) 6- (d) 7- (d) 8- (d) 9- (d) 10- (d)

mfPkRk LkGk/k TkkfM ,ks-

- | v   | Ck   |
|---|--|
| 1- /kkj kEkkIkh dh LkGk/fGRkk   | (a) $B = \frac{\mu_0}{4\pi} \cdot \frac{2\pi nI}{a}$ |
| 2- Ykkj jk CkYk dk Ekk«kd   | (b) vf/kdRkEk gkBlkhs gS                             |
| 3- /kkj kEkkIkh dks vEkhVj Eka CknYkUks ds fYk, vkOk' ,kd IkfRkj kSk      | (c) $B = \mu_0 nI$                                   |
| 4- /kkj kOkkgh OkRRkkdkj dqMYkh ds dLæ lkj RkhOkRkk                       | (d) $S = \frac{nAB}{C}$                              |
| 5- /kkj kOkkgh dqMYkh ds dLæ lkj PkqCkdh ,k {kSk                          | (e) YkXkHkXk 'kD ,k gkBlkhs gS                       |
| 6- /kkj kEkkIkh dks OkkSv EkhVj Eka CknYkUks ds fYk, vkOk' ,kd IkfRkj kSk | (f) VgkYkk   |
| 7- /kkj kOkkgh IkfjUkkfYkdk ds Ckkgj PkqCkdh ,k {kSk                      | (g) $S = \frac{I_g G}{I - I_g}$                      |
| 8- RkkDka dh dYkkbZ djUks ds fYk, fok   Bk vi ?kV;                        | (h) fLkYOkj Ok Ikks/S' k ,kEk LkkbUkkbM dk foYk ,kUk |
| 9- /kkj kOkkgh IkfjUkkfYkdk ds dkj .k vanj fdLkh fCkanq lkj RkhOkRkk      | (i) dkWkj LkYQs/ dk foYk ,kUk                        |
| 10- Pkkanh dh dYkkbZ gBlq fok   Bk vi ?kV;                                | (j) $R = \frac{V}{I_g} - G$                          |

- mRRkj – 1- (d) 2- (f) 3- (g) 4- (a) 5- (b) 6- (j) 7- (e) 8- (i) 9- (c) 10- (h)

# bdkbZ 07

## fOk | Bk PkqCkdh,k Ikj .k , Oka Ikr,kkOkrkhZ /kkjk

vfRk Yk?kqRRkj,h,k Ikt Uk

- 1- fdLkh PkqCd dks dqMYkh LkEkhlk Yks TkkUks Ikj fOk | Bk Okkgd CkYk Ikfj Rk gks TkkRkk gS D<sub>3</sub>kkà
- 2- 10 vkeK IkrRkjksk OkkYks Ckan Ikfj IkfEka Eka qYkLd  $\phi$  OkSkj Eka LkEk<sub>3</sub> k t 1/4 LkdM Ekà ds Lkkfk fUkEuk LkEkhdj.k }kj Ikfj OkfRkRk gkRkk gS  $\phi = 7t^2 - 8t + 1$  Rkks LkEk<sub>3</sub> k t=0-05 LkdM Ik' PkkRk~ Ikfj Rk /kkjk dk Ekkuk KkRk dhfTk, \
- 3- fn"V /kkjk fdLkds }kj jkd fn<sub>3</sub>kk TkkRkk gS vkSj D<sub>3</sub>kkà
- 4- ,kfn dkbZ Ik"B PkqCkdh,k {ksek ds LkEkRkj gks Rkks PkqCkdh,k qYkDI Ikj D<sub>3</sub>kk IkHkkOk IkMxkk\
- 5- PkqCkdh,k qYkDI dh IkfjHkk"kk fyk[kdj mLkd SI Ekkkd fyk[k, \
- 6- , d Ckan vkSj , d [kq'kh gPZ dqMYkh Eka PkqCd fXkjUks Ikj nkskka Ikj D<sub>3</sub>kk IkHkkOk IkMxkk\
- 7- D<sub>3</sub>kk dkj.k gS fd fOk | Bk PkqCkdh,k {ksek ds Ek<sub>3</sub> k nkykuk djRk gqvk /kkRkq dk , d vk<sub>3</sub>krkdkj IYks/ 'kh?kRkk Lks : d TkkRkk gS
- 8- gEkjs ?kja Eks CkGUks OkkYkh /kkjk fTkLdh vkOfRRk 50 Pk0@Lkd.M gkRkh gS CkRkbb<sub>3</sub>ks fd Ikr<sub>3</sub>kd Pk0 Eka /kkjk dk Ekkuk fdRkUks Ckj vf/kdRkE , Oka fdRkUks Ckj U<sub>3</sub>kkRkEk gkRkk gS
- 9- Ikr<sub>3</sub>kkOkrkhZ /kkjk dks EkkUks OkkYks mlkdj .kka ds IkEkUks ds fPkUg vLkEkUk njh Ikj gkRks gS D<sub>3</sub>kkà
- 10- dSkYk vkekh<sub>3</sub> k IkrRkjksk OkkYks Ikfj IkfEka Eka Ikr<sub>3</sub>kkOkrkhZ OkkYVf'k , Oka Ikr<sub>3</sub>kkOkrkhZ /kkjk Eka D<sub>3</sub>kk Lkàk gkRkk gS
- 11- ?kja Eka ml<sub>3</sub>kkk Eka gkRks OkkYks Vî Bk YkkbV Eka Pkksd DOkkbYk dk ml<sub>3</sub>kkk djRks gS D<sub>3</sub>kkà \
- 12- ,kfn nksLkEkUk æ0<sub>3</sub> k Ekkuk ds IkrFkj ds VpM<sub>3</sub> vkSj /kkRkq ds VpM<sub>3</sub> dks , d gh ÅPkkbZ h Lks , d Lkkfk fXkj<sub>3</sub>kk Tkk<sub>3</sub>ks Rkks dSk Lk VpM<sub>3</sub> IkFokh RkYk Ikj Ckn Eka IkgPkkk vkSj D<sub>3</sub>kkà

- 13- PkDdj IkfjRk /kkjk, j fdLks dgRks gS
- 14- VrkLQkEkj Eka IkRkYks-IkRkYks Ikfê, kka dks TkkM/dj ØkM CkUkk, kk TkkRkk gS D, kka
- 15- Mk, kUkEkks Eka Ckqk YkXkk, ks TkkRks gS D, kka \
- 16- Ekks/j dks PkkYkw djRks LkEk, k mLkds }kjk vf/kd /kkjk Ykh TkkRkh gS D, kka
- 17- /kkjk dk vks.kRkEkku 'k, k gkks Ikj Hkh Ikfj IkFk Eka /kkjk Ykh TkkRkh gS D, kka
- 18- fok | Bk CkYck dh RkqkUkk Eka Vî ØkYkkbV dk mlk, kkkk djUkk Pkfg, D, kka

### Yk?kqRRkj, k Ikz Uk

- 19- fLk) djks fd vU, kkk, k Ikj dRok dk Ekkuk mLkds Lokkij dRok ds Xkq kkkij Ekk/, k ds CkjCkj gkRkk gS
- 20- f«T, kk r OkYks LkEkRkYk OkRRkkdkj dqMYkh fTkLkEka Ojks dh Lkq, kk 2N gS RkFkk IkkkfgRk /kkjk  $\frac{I}{2}$  gks Rkks dqMYkh dh Lokkij dRok dh Xk, kUkk dhfTk, \
- 21- IkR, kkokRkhZ /kkjk Ikfj IkFk dks fUk, kkkRk djUks ds fYk, Ikz kDk mPPk Ikj dRok , Oka UkXk, k IkRkj ksk dh , k, kh, kDk dk UkkEkkdRk j[ kfpk« CkUkkdj Lkij PkUkk , Oka dk, kZOkf/k fYkf [k, A
- 22- IkR, kkokRkhZ Okk, VStk dk OkkZ Ek/, k EkvEkku f' k [k] Ekkuk dk 0-707 Xkqkk gkRkk gS fLk) dhfTk, \
- 23- Okdks /kkjk, j ds Rkhuk mlk, kkkk CkRkkb, ks
- 24- Q Xkqkd Lks vkik D, kk LkEkOkRks gS Xkqkd dk O, kkd L vksj C ds lknka Eka fUkd fYk, ks
- 25- fLk) dhfTk, fd YkTk dk fUk, kEk ÅTkZ Lkij {k, k ds fUk, kEk ds vUkqYk gS
- 26- Lokkij, k ds Ikz kkkk Eka TkCk fok | Bk Ikfj IkFk dks HkZk djRks gS RkCk CkYck dN {k, k ds fYk, RkStk Ikzk' k Lks TkYkRkk gS vksj Rkij Bk Ckqk TkkRkk gS dkj, k fYkf [k, \
- 27- fn"V /kkjk dks fUk, kkkRk djUks ds fYk, IkRkj ksk dk mlk, kkkk djRks gS D, kka TkCkd IkR, kkokRkhZ /kkjk dks fUk, kkkRk djUks ds fYk, Ikj dRok dk mlk, kkkk djRks gS D, kka
- 28- LkEkku Okk, VStk dk IkR, kkokRkhZ /kkjk] fn"V /kkjk Lks vf/kd [RkjUkkd gkRkh gS D, kka
- 29- fLk) dhfTk, fd , d v) PkØ Eka IkR, kkokRkhZ Okk, VStk dk vks.kRk Ekkuk  $\frac{2V_0}{\pi}$  gkRkk gS

- 30- vkeh<sub>3</sub>k Ikrkjksk vksj /kkfjRkk OkYks Ikr<sub>3</sub>kkOKRkhz IkfjIkFk Eka Ikr<sub>3</sub>kkOKRkhz Okk<sub>3</sub>V<sub>3</sub>Tk vksj Ikr<sub>3</sub>kkOKRkhz /kkjk ds CkhpK Lk<sub>3</sub>k<sub>3</sub>Lk LFkkfIkRk dhfTk, , Oka mUkEka dYkkURkj dk Ekkuk fYkf[k, A
- 31- vUk<sub>3</sub>kknh IkfjIkFk Eka vUk<sub>3</sub>kknh vOkfUk ds Lk<sub>3</sub>kkRk /kkjk dk Ekkuk Ikrkjksk R Ikj fdLk Ik<sub>3</sub>dkj fUkHk<sub>3</sub> djRkk g<sub>3</sub> XkkQ }kj k LkEÖkkb<sub>3</sub>ks
- 32- fok |  $\beta$  dae Eka mRIKUUK fok |  $\beta$  /kkjk dks, d LFkkuk Lks n<sub>3</sub>ukjs LFkkuk Rkd Yks TkkUs ds fYk, fdLk V<sub>3</sub>k<sub>3</sub>QkEk<sub>3</sub> dk m<sub>3</sub>kk<sub>3</sub>kk djRks g<sub>3</sub> vksj D<sub>3</sub>kk<sub>3</sub>
- 33- , d Ikr<sub>3</sub>kkOKRkhz /kkjk ds fok |  $\beta$  Okgd CkYk dk LkEkhdj .k fUkEUK g<sub>3</sub>-  
 $E = 100 \sin 314 t$  gSRkks f' k [kj Okk<sub>3</sub>V<sub>3</sub>Tk RkFkk L<sub>3</sub>kk<sub>3</sub>Rk dh vOkfRRk Kkrk dhfTk, \

**nh?kz mRRkj h<sub>3</sub>k Ikz Uk**

- 1- , d Ikj dRok vksj , d Ikrkjksk dks Js khØEk Eka TkkM/dj Ikr<sub>3</sub>kkOKRkhz L<sub>3</sub>kk<sub>3</sub>Rk ds LkkFk TkkM/k Xk<sub>3</sub>kk g<sub>3</sub> IkfjIkFk Eka Ikfj .kkEkh fokHOKKURkj Kkrk dj IkrRkCkk/kk RkFkk /kkjk , Oka Okk<sub>3</sub>V<sub>3</sub>Tk ds CkhpK dYkkURkj dh Xk.kukk dhfTk, \
- 2- , d /kkjk 5 , fEIk<sub>3</sub>kj fn"V /kkjk vOk<sub>3</sub>kok vksj  $I = 5 \sin \omega t$  , fEIk<sub>3</sub>kj Ikr<sub>3</sub>kkOKRkhz /kkjk vOk<sub>3</sub>kok Lks fEkYkdj CkUk g<sub>3</sub>pZ gS Rkks Ikfj .kkEkh /kkjk ds fYk, O<sub>3</sub>k<sub>3</sub>kd fYkf[k, RkFkk bLdk Ik<sub>3</sub>kkkOkh Ekkuk dh Xk.kukk dhfTk, \
- 3- , d Ikr<sub>3</sub>kkOKRkhz L<sub>3</sub>kk<sub>3</sub>Rk dh Okk<sub>3</sub>V<sub>3</sub>Tk  $v = 50 \sin(\omega t + \frac{\pi}{3})$  RkFkk /kkjk  $I = 50 \sin(\omega t - \frac{\pi}{3})$  Lks nh TkkRk gS Rkks fUkEUK dh Xk.kukk dhfTk, -  
 1- IkfjIkFk dh IkrRkCkk/kk      2- IkfjIkFk Eka 'kFDRk {k<sub>3</sub>k
- 4- Ikfj .kkfEk«k Eka gk<sub>3</sub>lks OkYkH ÄTkkz gkfuk dk Ok.k<sub>3</sub>kk djRks gq mUga dEk djUks ds m<sub>3</sub>kk<sub>3</sub>k CkRkkb<sub>3</sub>ks
- 5- fok |  $\beta$  Tfuk= fdLk fLk) k<sub>3</sub>kk Ikj vk/kkfjRk gS fn"V /kkjk Tfuk= ds IkEkq<sub>3</sub>k HkkXkka dk Ok.k<sub>3</sub>kk djRks gq f<sub>3</sub>kk fokf/k fYkf[k, \
- 6- nks LkEkRkYk OkRRkkdkj LkEk<sub>3</sub>(kh<sub>3</sub>k d<sub>3</sub>q. MYk<sub>3</sub>kkj , d n<sub>3</sub>ukjs ds fUkdV fLFkRk g<sub>3</sub> ds fYk, vU<sub>3</sub>kk<sub>3</sub>k Ikj dRok dk O<sub>3</sub>k<sub>3</sub>kd Kkrk dhfTk, \ vU<sub>3</sub>kk<sub>3</sub>k Ikj dRok dks Ik<sub>3</sub>kkkFokRk djUks OkYks dkjd fYkf[k, \
- 7- , d dkj dk , fj<sub>3</sub>kYk 1 EkHvj Yk<sub>3</sub>kk gS Okg Ik<sub>3</sub>kkz Lks Ikf' PkEk dh vksj 50 fdEkH-@ ?k. Vs dh PkYk Lks PkYk jgh g<sub>3</sub> , fn IkFokh dh {kSRkTk RkhOkRkk dk Ekkuk  $3.6 \times 10^{8.5}$  OkSkj @eh<sup>-2</sup> gks Rkks , fj<sub>3</sub>kYk ds fLk<sub>3</sub>ka Eka mRIKUUK Ikr<sub>3</sub>Rk fok |  $\beta$  Okgd CkYk dk Ekkuk



Kkrk dhfTk, \

### OkLRkqUk"B

fjDRk LFkkUkka dh IkRkZ dhfTk, -

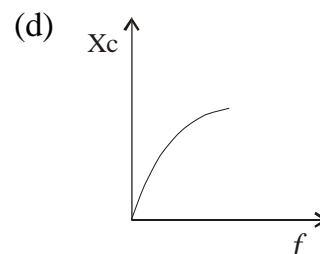
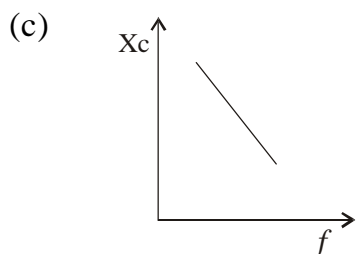
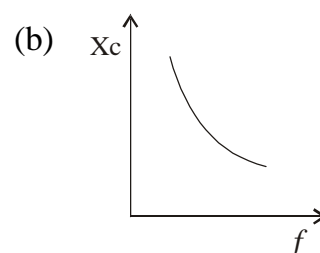
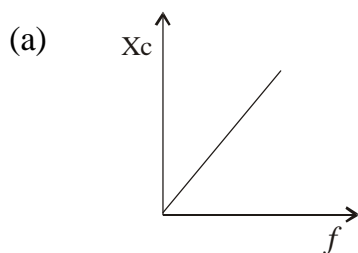
- 1- nks dqMfYk<sub>3</sub> kka dk vU<sub>3</sub> kkl<sub>3</sub> k Ikj dROK \_\_\_\_\_ ds }kj k Ck<k<sub>3</sub> k Tkk LkdRkk gA
  - 2- , d dqMYkh dk LokIkJ dROK L gA Ykakkbz vksj {k&kQYk LkEkKUK j [kRks gq bLkds Qjks dh Lkq<sub>3</sub> k Ck<kdj Pkkj Xkqkh dj nh XkbZ gA vCk bLk dqMYkh dk LokIkJ dROK \_\_\_\_\_ gk&kk A
  - 3- \_\_\_\_\_ OkkYks , -Lkh- Ikfj IkFk Eka IkR<sub>3</sub> kkoRkKhZ /kkj k IkR<sub>3</sub> kkoRkKhZ OkkYVfTk Lks  $\pi/2$  \_\_\_\_\_ gk&kh gA
  - 4- IkRkYks Rkkj dks fEkYkkdj Ekks/k Rkkj CkUkkRks gq \_\_\_\_\_ Ik&kkOk dk fukkdj .k fd<sub>3</sub> k TkkRkk gA
  - 5- 3 fEkYkh g&kh Ikj dROK vksj 4 v&Ek Ik&Rkjks&k OkkYks , d LR Ikfj IkFk Eka fOk-Okk- CkYk E = 4cos(1000t) OkkYV fd<sub>3</sub> k Xk<sub>3</sub> k gA Ikfj IkFk Eka /kkj k dk vk<sub>3</sub> kEk \_\_\_\_\_ gk&kk A
  - 6- VYkhOk&k ds EkkmFkIkhlk dh dk<sub>3</sub> kZOkf/k \_\_\_\_\_ Ikj vk/kkfjRk gA
  - 7- V&kOkQEkj dh dqMYkh ds Ckkj Ckkj Pk&CkfdRk , Oka fOkPk&CkdhRk ds dkj .k gk&ks OkkYks gkfuk dks \_\_\_\_\_ dgRks gA
  - 8- Vksj kbM Eka /kkj k Ik&kkfgRk djUks Ikj Vksj kbM ds d&e Ikj mRlkuUk Pk&Ckdh<sub>3</sub> k {k&k dh RkhOkRkk \_\_\_\_\_ gk&kh gA
  - 9- Yk&k dk fuk<sub>3</sub> kEk \_\_\_\_\_ fuk<sub>3</sub> kEk Ikj vk/kkfjRk gk&kh gA
  - 10- fOk | &k Ikfj IkFk Ckm djRks LkEk<sub>3</sub> k fPk&kkjh \_\_\_\_\_ ds dkj .k mRlkuUk gk&kh gA
- mRRkj& 1- PkDdj Ck<kdj 2- 162 3- /kkfjRkkj vXk&kkEk 4- ROkfPk d Ik&kkOk  
 5- 0-8A 6- fOk | &k-Pk&Ckdh<sub>3</sub> k Ikj .k 7- ' k&fY<sub>3</sub> k gkfuk 8-  $\mu_0 n I$  9- &Tkkz Lkq {k .k  
 10- LokIkJ dROK A

cgfodYih; i z u

- 1- Yk&k dk fuk<sub>3</sub> kEk vk/kkfjRk gS-
 

(a) dks kh <sub>3</sub> k Lk&kk Lkq {k .k fuk <sub>3</sub> kEk	(b) js [kh <sub>3</sub> k Lk&kk Lkq {k .k fuk <sub>3</sub> kEk
(c) &Tkkz Lkq {k .k fuk <sub>3</sub> kEk	(d) bukEka Lks dksZ Ukgha A

- 2- RC dk f0keh,k Lkuk fUKEu ds LkEkkuk gkRkk g\$-  
 (a) CKYk (b) LkEk,k (c) R0kj .k (d) /kkfjRkk
- 3- 100 vkEk IkfRkjksk OkkYks , d IkfjIkFk Eka PkqCkdh,k ¶YKDI 10 OkSkj Lks 60 OkSkj gks TkRkk g\$ A IkfjIkFk Eka Ik0kkfgRk gkRks OkkYks IkjRk vk0ks k dk Ekkuk dWkkRk Eka g\$  
 (a) 500 (b) 50 (c) 0.5 (d) 5000
- 4- f0k |Rk Ekks/j Eka Ik0kkfgRk /kkjk dk Ekkuk vf/kdRkEk gkRkk g\$-  
 (a) Tkck Ekks/j fLFkj v0kLFkk Eka gkRkk g\$ (b) Ekks/j XkFRk' khYk gkRkk g\$  
 (c) Lkn0k , d LkEkkuk Ik0kkfgRk gkRkk g\$ (d) bukEka Lks dkbZ UkghA
- 5- fn"V /kkjk dk Ikj .k IkfRk?kkRk gkRkk g\$-  
 (a) 'k0,k (b) vUkRk (c) , d gTkkj (d) bukEka Lks dkbZ UkghA
- 6- 220 Okk\$V dh LkEkkuk f0khk0kkRkj JIkR,kk0kRkhZ RkFkk fn"V /kkjk Eka vkjksIkRk djUks Ikj IkR,kk0kRkhZ f0khk0kkRkj dh vf/kdRkEk Ekkuk gkRkk g\$-  
 (a) 220v (b) 300v (c) 311-11v (d) 411-11v
- 7- , d IkR,kk0kRkhZ Okk\$VRkk dk LkEhdj.k  $200\sqrt{2} \sin(100\pi t)$  Okk\$V g\$ bLkdh vk0kfUk dk Ekkuk gkRkk-  
 (a) 100 (b) 50 (c)  $200\sqrt{2}$  (d) bukEka Lks dkbZ UkghA
- 8- fUKEUk Eka Lks d0k Lk XkkQ /kkfjRkh,k IkfRk?kkRk Xc dk vk0kfUk f ds LkkFk Ikfj0kRk0k dks Ikrf'kRk djRkk g\$-



- 9- mPPkk<sub>3</sub>kh VRkLkQkEkj ds fyk, lkfj .kEkUk vUkqkkRk dk EkKuk gkRkk gS-
- (a) 1 Lks vf/kd (b) 1 Lks dEk (c) 1 ds Ckj kCkj (d) buKEka Lks dkbZ UkgHA
- 10- lkr<sub>3</sub>kkOkRkhZ /kkjk dh vkOkfRRk nqkqkh djuks lkj /kkfj Rkh<sub>3</sub>k lkfRk?kkRk dk EkKuk gks TkkRkk gS-
- (a) vk/kk (b) nqkqkk (c) frkXkqkk (d) Pkkj Xkqkk A
- 11- LCR Js kh lkfj lkFk Eka  $R = 5$  vkeK  $X_L = X_C = 20\Omega$  vkeK RkFkk YkXkk<sub>3</sub>ks Xk<sub>3</sub>ks fOkHkOkkRkj dk OkXkZ EkK/Ek EkWk EkKuk 100 OkkV gS Rkks /kkjk dk EkKuk gkRkk -
- (a) 10A (b) 15A (c) 20A (d) 24A
- mRrjeyk& 1. (c) 2. (b) 3. (c) 4. (a) 5. (a) 6. (c) 7. (b) 8. (b) 9. (a) 10. (a) 11. (c)

## bdkbZ 8

### byDVku , oa QkVku

**vfRk Yk?kqRRkjh<sub>3</sub>k lk' Uk -**

- 1- fokf' k"V vkok's k fdLks dgRks gS bLkdK EkKuk fykf[k, \
- 2- ,kfn dkbZ bykDVvRuk fok | Bk RkFkk PkqCkdh<sub>3</sub>k {ksk Eka vYkXk-vYkXk lkok's k djRkk gSRkks nkbkka ds lkFk Eks D<sub>3</sub>kk vRkj gkRkk gS
- 3- ngYkh vkOkfRRk Lks dEk vkOkfRRk lkj bykDVvRuk dk mRLkTkZk LkOkOk UkgHa gS D<sub>3</sub>kkA
- 4- lkdk' k dk RkjXknS<sub>3</sub>z XkfrkTk ÅTkZ ds lkn ea fykf[k, \
- 5- ,kfn fdLkh /kkRkq dh lYkS/ lkj ,d gh vkOkfUk dk lkdk' k MkYkk Tk<sub>3</sub>k Rkks Hkh mRLkFTkRk lkdk' k bykDVvRuk dh Å TkZ a fHkUk-fHkUk D<sub>3</sub>kkA gkRkh gS
- 6- ,d QkVku ftI dk ox c rFkk vkofr v gSml dsrjæN;Zdsfy, l ≠ fyf[k, rFkk SI ek=d fyf[k, A
- 7- LkMdka dh CkFRk<sub>3</sub>ka ds LOkPkkfYkRk fLokPk ds : lk Eka fdLk LkYk dk mlk<sub>3</sub>kkk fd<sub>3</sub>kk TkkRkk gS LkEkOkkb<sub>3</sub>ks
- 8- ,d /kkRkq Lks mRLkFTkRk bykDVvRuk dh vf/kdRkEk XkfrkTk ÅTkZ dk<sub>3</sub>kz QYkUk ds LkkFk fdLk lkdkj lkfjOkfRRk gkRkk gS
- 9- MSoLkUk RkFkk Tkej ds lkzkkXk Eka fdLk OkkV lkj fOkOkRkZk dk EkKuk vf/kdRkEk gkRkk

gS RkFkk foOkRkZk dks k dk Ekkuk Hkh fykf[k, \

- 10- X fdj .ka ds foOkRkZk ds fyk, CkZk ds lkZkkZk Eka LkEkkU,k XkSVZk dk mlk,kkZk Uqgha gkZkk gS LkEkÖkk,ks
- 11- bYkDVrUk OkkSV Lks D<sub>3</sub>kk RkRk<sub>2</sub>kZ gS bLkdk Ekkuk TkWk Eka O<sub>3</sub>KDRk dhfTk,
- 12- nks fHkUk /kkRkqA vkj B dk kQYkuk ØEk'k%2ev vkj 5ev gSfdLk /kkRkqdk ngYkh vkOkfÜk dEk gkZkk \

### Yk?kqñÜkj h<sub>3</sub>k IkZ Uk

- 1- IkZk'k dh }Bk IkZVFRk D<sub>3</sub>kk gS LkEkÖkkb<sub>3</sub>ka
- 2- IkZk'k fok |Bk mRLkTkZk ds fu<sub>3</sub>kEk fykf[k, \
- 3- vkIkFRkRk Qks/kUk dh ÅTkZ XkFRkTk ÅTkZ vkj ngYkh vkOkfÜk Eka LkEkZk n'kkZks OkkYks LkEkhdj.k dh LFkkkUkk dhfTk, \
- 4- ,d /kkRkq dh LkRkq Ikj YkYk vkj UkhYk IkZk'k LkEkkuk RkhOkRk ds vkIkFRkRk gkZks gS /kkRkq Lks mRLkFTkRk bYkDVrUk dh XkFRkTk ÅTkZ fdLk IkZk'k ds fyk, vf/kd gkZkh\
- 5- LkRkC/k fokHkOk D<sub>3</sub>kk gS bLk Ikj vkIkFRkRk IkZk'k dh RkhOkRk vkj vkOkfÜk dk D<sub>3</sub>kk IkHkOk IkVRk gS
- 6- fdLkh IkZs/RUk RkFkk α d.k dks LkEkkuk fokHkOk Ikj ROkfjRk fd<sub>3</sub>kk Xk<sub>3</sub>kk buk nkbkka Eka Lks 1- fdLkds LkFk vf/kd Ekkuk dh Mh CkZkYkh RkjZknS<sub>3</sub>kZ LkEk) 2- fdLkdh XkFRkTk ÅTkZ dEk gkZkhA vIkUs mRRkj Ikq"V dhfTk, \
- 7- ,d Qks/kUk dh ÅTkZ ev Eka KkRk dhfTk, TkCkd mLkdk RkjZknS<sub>3</sub>kZ 2m gS
- 8- ,d bYkDVrUk 3000 OkkSV ds fokHkOkRkj }kjk ROkfjRk gkZkk gS mLkdk Okk KkRk dhfTk, \

### nh?kzRRkj h<sub>3</sub>k IkZ Uk –

- 1- æO<sub>3</sub>k RkjZkka ds lkn'kZk gRkq MfOkLkUk , Oka TkeZj lkZkkZk dh O<sub>3</sub>kk[<sub>3</sub>kk dhfTk, \
- 2- vkOkf'kRk d.k ds vkOkf'k vkj æO<sub>3</sub>kEkkuk ds vUkqkRk KkRk djUks dh fokf/k dk Ok.kZk dhfTk, \
- 3- IkZk'k fok |Bk IkHkOk LkEkZk YkZkMZ lkZkkZk dh O<sub>3</sub>kk[<sub>3</sub>kk fuKEUk 'kh"kd ds vk/kkj Ikj dhfTk, –

- 1- Ikfj IkFk
- 2- Ikzk'k dh RkhokRkk
- 3- Ikzk'k dh vkokfRRk dk IkHkkok A
- 4- FkkEKLKUK ds Ikzkkk Eka dSkkM Lks mRLkFTkRk bYkDVmUK 2 Kv fokHokkRkj Lks RokfjRk fd<sub>3</sub>kk TkkRkk gA<sub>3</sub>ks bYkDVmUKka ds XkFRk dh fn'kk dk YkOkORk Pkqdh<sub>3</sub>k {kSk vkSj fok | Bk Lks , d ntkj's ds YkOkORk Ikj YkXk<sub>3</sub>ks TkkRks gA Pkqdh<sub>3</sub>k {kSk dh RkhokRkk  $8-6 \times 10^{89}$  V<sub>3</sub>kYkk gA 1 LkEkh- nyjh Ikj fLFRk nks LkEkRkj IYk/ka ds Ek<sub>3</sub>k 200 OkS/V dk fokHokkRkj YkXkdj fok | Bk {kSk mRIKUUK fd<sub>3</sub>kk TkkRkk gA<sub>3</sub>fn bYkDVmUKka dk fok{kSk 'k<sub>3</sub>k gks Rkks bYkDVmUKka ds fokf'k"V vkokS'k dh Xk. kUkk dhFTk, \

### OkLRkqUk" B izu

- 1- 2000°A dh IkjkCkXkUkh fokdj .k fuKfdYk /kkRkq Ikj vkIkFRkRk gkRkh gA fuKfdYk dk dk<sub>3</sub>kQYkUk 5-01ev gS Rkks mRLkFTkRk bYkDVmUK dh vf/kdRkEk PkYk gkXkh –
  - (a)  $3 \times 10^8$  m/s
  - (b)  $6.44 \times 10^5$  m/s
  - (c)  $10.36 \times 10^5$  m/s
  - (d) mlkj kDRk Eka Lks dkbZ Ugha
- 2- , d QkS/kUk , d bYkDVmUK 1<sub>3</sub>kj<sub>3</sub>SUK<sub>3</sub>kEk UkkfHkd LkHk dh Rkj<sub>3</sub>nkS<sub>3</sub>kz LkEkKUK gS buKEka Lks LkCkLks vf/kd ÅTkkz gkXkh
  - (a) QkS/kUk
  - (b) bYkDVmUKdh
  - (c) <sub>3</sub>kj<sub>3</sub>SUK<sub>3</sub>kEk UkkfHkd dh
  - (d) Rkj<sub>3</sub>nk nS<sub>3</sub>kz Ok d . kka ds Xkq kka Ikj fuKHkj
- 3- TkCk /kkRkq Ikj gjk Ikzk'k vkIkFRkRk djRks gA Rkks QkS/ks bYkDVmUK mRLkFTkRk gkRks gA Ikj Bkq TkCk IkHYks Ikzk'k ds }kj<sub>3</sub>k<sub>3</sub>kg mRLkLkTkUk IkIRk Ugha gkRkk gS vU<sub>3</sub>k dksk LkOk .kz QkS/ks bYkDVmUK mRLkFTkRk dj<sub>3</sub>kk –
  - (a) Ukkj<sub>3</sub>kh
  - (b) YkYk
  - (c) TkEkqjkh
  - (d) buKEka Lks dkbZ Ugha
- 4- 100ev XkFRkTk ÅTkkz OkYks bYkDVmUK dh /kkjk dh Rkj<sub>3</sub>nk YkOkk<sub>3</sub>BZ D<sub>3</sub>kk gkXkh–
  - (a) 4-8A°
  - (b) 3-6A°
  - (c) 1-2A°
  - (d) 2-4A°
- 5- TkCk bYkDVmUK dk Ikq'k fCk- {kSk Lks Xkq'kjRk gS RkCk mLkdh XkFRkTk ÅTkkz Ck< TkkRkh gS TkCk<sub>3</sub>gh Ikq'k Pkq {kSk Lks Xkq'kjs RkCk –
  - (a) bLkLks XkFRkTk ÅTkkz Ck<Rkh gS
  - (b) bLkdk LkOkk Ck<Rk gS

(c)  $\lambda_{\text{photon}} < \lambda_{\text{electron}}$  gS

(d)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  gS

6-  $\lambda_{\text{photon}} = 2.51 \text{ nm}$  dh  $\lambda_{\text{electron}}$  dk eku gS

(a)  $5.9 \times 10^{14} \text{ m}^{-1}$

(b)  $6.5 \times 10^{14} \text{ m}^{-1}$

(c)  $9.4 \times 10^{14} \text{ m}^{-1}$

(d)  $6.08 \times 10^{14} \text{ m}^{-1}$

7-  $\lambda_{\text{photon}} = 400 \text{ nm}$  dh  $\lambda_{\text{electron}}$  dk eku gS

(a)  $\lambda_{\text{photon}} < \lambda_{\text{electron}}$  (b)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (c)  $\lambda_{\text{photon}} = \lambda_{\text{electron}}$  (d)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$

8-  $n_r$  vkj  $n_b$  yky o uhy  $n_r > n_b$  ds,  $\lambda_{\text{photon}}$  dk eku  $\lambda_{\text{electron}}$  dh  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  gS

(a)  $n_r > n_b$  (b)  $n_r > n_b$  (c)  $n_r > n_b$  (d)  $n_r > n_b$  ds chp  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  gS

9-  $\lambda_{\text{photon}} = 1.92 \text{ eV}$ ,  $2.0 \text{ eV}$  r  $5.0 \text{ eV}$  vkj  $4100 \text{ \AA}$  dh  $\lambda_{\text{electron}}$  dk eku  $\lambda_{\text{photon}}$  dh  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  gS

(a)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (b)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (c)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (d)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$

10-  $\lambda_{\text{photon}} = 400 \text{ nm}$  dh  $\lambda_{\text{electron}}$  dk eku gS

(a)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (b)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (c)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (d)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$

11-  $\lambda_{\text{photon}} = 400 \text{ nm}$  dh  $\lambda_{\text{electron}}$  dk eku gS

(a)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (b)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (c)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (d)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$

12-  $\lambda_{\text{photon}} = 400 \text{ nm}$  dh  $\lambda_{\text{electron}}$  dk eku gS

(a)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (b)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (c)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  (d)  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$

1. (b) 2. (a) 3. (c) 4. (c) 5. (d) 6. (d) 7. (b) 8. (a) 9. (b) 10. (d) 11. (d) 12. (d)

fjDr LFku dh ifrZ dhft, &

1-  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  dk  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  gS

2-  $\lambda_{\text{photon}} = 400 \text{ nm}$  dh  $\lambda_{\text{electron}}$  dk eku  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  gS

3-  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  dk  $\lambda_{\text{photon}} > \lambda_{\text{electron}}$  gS

- 4-  $v_{kBLVhu} dk i_{dk} k fo | r | eh hv = \dots \$ \frac{1}{2} v^2_{max} gA$
  - 5- I k/kj .k nkc ij i k; % I Hkh xS fo | r dh &&&& gkrh gA
- mRrjetyk&1- Qks/ku 2-  $h\nu_0$  3- fo | r Åtkl 4-  $h\nu_0$  5- dþkyd

## bdkbz 09

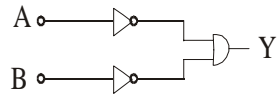
### Bkl , oa v) þkyd ; þDr; kj

vfrk Yk?kqRRkj h,k lkz Uk -

- 1- P-N I ð/k Mk; kM dks vxz vffkfur vksj i 'p vffkfur ea tkMusij vo{k; irz dh pksMkbz ij D; k i Hkko i Mrk gS
- 2- P-N I ð/k Mk; kM Lohp dh rjg dk; Z djrk gS dkj .k crkb; S
- 3- P-type vksj N-type ds v) þkyd D; kacuk; s tkrsgavksj buaefdl i dzkj dh v' kq) ; kj feykbz tkrh gS
- 4- I kekU; I ð/k Mk; kM Hkat u foHko ij u"V gks tkrk gS tcf d tsuj Mk; kM ughþ D; kA
- 5- cktkj eami yC/k VrfTLVj dks vki dS sigpkuaæsf d og , d VrfTLVj gS
- 6- 'kq) v/kPkkYkd Eka f«kLkqkksTkh v' kq) , kka fEKYkkUks lkj mLkdh OkfTKRk ÅTkkz vRkj kYk Eka D, kk IkHkkOk IkMxkk\
- 7- fLkFYkdKkk fØLVYk ds ÅTkkz LRkj vURkj kvk. kfokd njh ds LkkFk fdLk d{k ds ÅTkkz LRkj Eka lkj OkRkRk gkRkk gS vksj D, kka
- 8- P-N-P VraTKLVj ds mHk, kFuk" B mRLkTKzd fok/kk Eka VraTKLVj dks lkø/kzd dh HkkfRk lkz kkkk djUks lkj fUKOks kh fLkXkUKYk vksj fUKXkRk fLkXkUKYk Eka dYkkURkj D, kk gkXkk\
- 9- 'kq) v) PkkYkd Eka lkRk LkqkksTkh v' kq) fEKYkkUks lkj mLkdh OkfTKRk ÅTkkz vRkj kYk Eka D, kk IkHkkOk IkMxkk\
- 10- N-type vksj P-type ds v/kPkkYkd Eka CksjRkj dkØk gS vksj D, kka
- 11- VraTKLVj Eka vk/kkj dh PksMkbz dEk j [kh TkrRkh gS D, kka
- 12- Tkskj Mk, kM dh Lkgk, kRkk Lks OkSvSf k fuk, kkekd dk lkj lkFk Ckukkb, A
- 13- VraTKLVj ds fUKOks kh vfhkYkk{kf. kd OkØ Eka lkj jlk Eka /kkjk dk Ekkuk 'kq) k gkRkk gS dkj .k LIk"V dhfTk, A

14- P-N-P VāTKLVj , Ōa N-P-N VāTKLVj Eka mRLkTkđ vk/kkj RkFkk Lkđkđgd /kkjk dh fn'kk ČkRkkb, A

15- fPk«k Eka Y dh Xk.kukk dhfTk, &

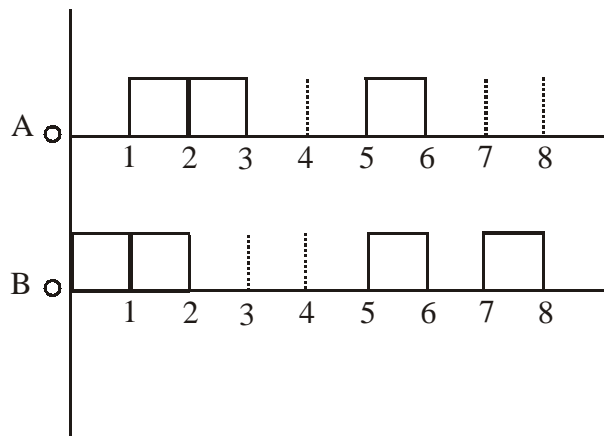


**Yk?q mŪkj<sub>h</sub> k Ik' Ūk**

16- fLk) dhfTk, fd mHk<sub>k</sub>fuk"B mRLkTkđ fok/kk Eka 'kfDRk YkkHk] mHk<sub>k</sub>fuk"B vk/kkj fok/kk Eka 'kfDRk YkkHk dh RkYkukk Eka vf/kd gkRkk gā

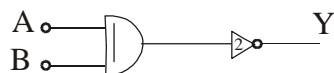
17- ŪkhPk<sub>s</sub> fn<sub>s</sub> Xk<sub>s</sub> vkj<sub>s</sub> Eka A vkj B nks fLkXkukYk dk ml<sub>k</sub>kkk NORXk<sub>s</sub>/ ds fukŌk<sub>s</sub> kh fLkXkukYk ds : Ik Eka fd<sub>k</sub>kk TkRkk gā bLkdk fukXkRk fLkXkukYk (output) IkkIRk dhfTk, A bLkdk logic LkđRk ČkUkkb<sub>k</sub>ā

18- P-N Lkā/k Mk<sub>k</sub>kkM dks vXlz vfHkfukRk Eka j [kRks gq vkj<sub>s</sub>fRk fokHkŌkkurkj vkj Mk<sub>k</sub>kkM Lks IkkkkfŌRk /kkjk ds Ek<sub>k</sub> vkj<sub>s</sub> [khRk<sub>s</sub> gq LkEkŌkkb<sub>k</sub>ā



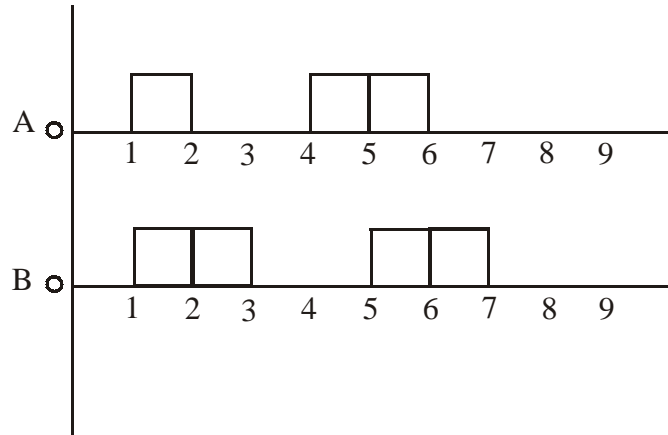
19- ĀTkiz ČkSM ds vk/kkj Ij P-type ds v) PkkYkd dh Ō<sub>k</sub>[<sub>k</sub> dhfTk, A

20- fn<sub>s</sub> Xk<sub>s</sub> fPk«k Eka YkkfTkđ Ikfj IkFk Eka YkkfTkđ Xk<sub>s</sub>/ 1 vkj 2 dks IkgPk<sub>k</sub>fuk<sub>s</sub> vkj mLkdk fukXkRk LkEkhdj<sub>k</sub> fyk[kRks gq LkR<sub>k</sub> Lkkj<sub>k</sub> kh ČkUkkb<sub>k</sub>ā

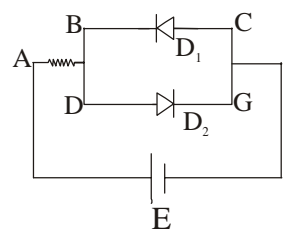


21- ŪkhPk<sub>s</sub> fn<sub>s</sub> Xk<sub>s</sub> fPk«k Eka P vkj Q nks fLkXkukYk dk ml<sub>k</sub>kkk NAND Xk<sub>s</sub>/ ds fukŌk<sub>s</sub> kh fLkXkukYk (input) ds : Ik Eka fd<sub>k</sub>kk TkRkk gā bLkdk fukXkRk fLkXkukYk (output) IkkIRk dhfTk, A bLkdk logic LkđRk ČkUkkb<sub>k</sub>ā-

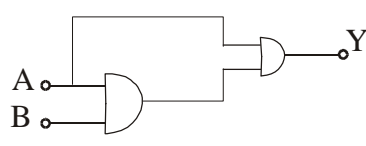




22- fPk«k Eka nks Mk<sub>kkM</sub>  $D_1$  v<sub>kj</sub>  $D_2$ , d CkS/jh E RkFkk, d IkfRkj k<sub>sk</sub> R Lks TkksMk Xk<sub>kk</sub> g<sub>SA</sub> Ikfj IkFk Eka /kkjk dh fn'kk Kkrk dhfTk, A



23- fn<sub>ks</sub> Xk<sub>ks</sub> fPk«k Eka fuXkRk LkEkhdj .k fyk [kRks gq LkR<sub>k</sub> Lkj .kh CkUkkb<sub>ksA</sub>



24- P-N Lk<sub>k</sub>/k Eka vOk{k<sub>k</sub> kRkZ dh PkksMk<sub>z</sub> 0-2 EkkbØkEkthVj RkFkk Ik<sub>k</sub>Pkhj fOkHkOk 0-2 Okk<sub>SV</sub> gS Rkks fOk | <sub>qk</sub> {k<sub>sk</sub> dh Xk<sub>kk</sub> dhfTk, A

**nh?kz mÜkj<sub>h</sub>k Ik' Uk**

25- fOk | <sub>qk</sub> Ikfj IkFk [khpkdj LkEkÖkkb<sub>ks</sub> fd P-N-P V<sub>h</sub>TkLVj dks mHk<sub>kfuk</sub>"B mRLkTkZd fOk/kk Eka IkOk/kZd dh Hkk<sub>h</sub>Rk mIk<sub>kk</sub>Xk Eka d<sub>sk</sub> Yk<sub>kk</sub> TkRk<sub>gS</sub> A /kkjk YkkHk] Okk<sub>SV</sub>Yk<sub>kk</sub> RkFkk 'kfDRk YkkHk ds fyk, 0<sub>sk</sub>kd Kkrk dhfTk, A

26- nkSYk«k D<sub>kk</sub> g<sub>SA</sub> vkOk' <sub>kd</sub> Lk<sub>k</sub>/k V<sub>h</sub>TkLVj dk mIk<sub>kk</sub>Xk dj CkUkk, Xk, nkSYk«k dk Ok<sub>kk</sub> fUkEuk 'kh"kdka ds vk/kkj Ikj dhfTk, A

- 1- UkkEkk<sub>h</sub>DRk fOk | <sub>qk</sub> Ikfj IkFk] 2- fLk) k<sub>h</sub>k 3- fØ<sub>kk</sub> fOkf/k

27- IkR<sub>kk</sub>OkRk<sub>h</sub>z /kkjk dk Ik<sub>kk</sub>z Rkj<sub>h</sub>k fn<sub>h</sub>"Vdj .k djUks g<sub>h</sub>q vkOk' <sub>kd</sub> fOk | <sub>qk</sub> Ikfj IkFk [khpkdj mLkds dk<sub>kk</sub>z fOkf/k dh 0<sub>kk</sub>[<sub>kk</sub> dhfTk, A

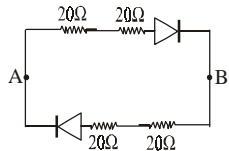
**OkLRkqUK" B Ik' Uk**

- 1- P- Ikdkj dk v) PkkYkd fukFEkRk gkRkk gS fukeUkFYkf [kRk ds fEkYkkUks Lks &
  - (a) 'kq) fLkFYkdKUK Eka vLkLkUKd
  - (b) 'kq) TEkEUK,kEk Eka , .VhEkUkh
  - (c) 'kq) fLkFYkdKUK Eka XkSYk,kEk
  - (d) 'kq) TEkEUK,kEk Eka QkLQkj Lk
  
- 2- 'kU,k dSYOkUK RkkIk Ikj TEkEUK,kEk fØLVYk dkOkFTkRk ÅTkKz vURkjYk gkRkk gS &
  - (a) 1-05eV (b) 0-105eV (c) 0-72eV (d) 0-02eV
  
- 3- , d N-Ikdkj dk v/kPkkYkd gS &
  - (a) \_\_.k vKkS' kRk (b) /kUkkkS' kRk (c) mnkLkUk (d) bukEka Lks dkbz Ukgha
  
- 4- ,kfn 5 fdYkks vkEk YkkM IkFRkj kS'k ds fYk, fdLk IkØ/kZl dk OkS'VRkk YkkHk IkØ/kZl Xkqkkad dk 1/3 gks Rkks IYkS/ IkFRkj kS'kd &
  - (a) 12 fdYkks vkEk (b) 10 fdYkks vkEk
  - (c) 15 fdYkks vkEk (d) 5 fdYkks vkEk (kΩ)
  
- 5- v) PkkYkd dk RkkIk Ck<kUks Ikj bukUkd IkFRkj kS'k &
  - (a) Ck<Rkk gS (b) ?kVRkk gS (c) vIkfjOkFRkRk jgRkk gS (d) bukEka Lks dkbz Ukgha
  
- 6- P-N Lkñ/k Mk,kkM ds vXkz/fHkFURk RkFkk mRØEk vFhkfURk 0,kOkLFkk Eka IkFRkj kS'kka dk YkXkHkXk vUkqkRk gkRkk gS &
  - (a) 10<sup>2</sup> %1 (b) 10<sup>&2</sup> %1 (c) 1 % 10<sup>&4</sup> (d) 1 % 10<sup>4</sup>
  
- 7- fukeUk fPkak Eka /kkjk dk EkkUk gkRkk &
 

The diagram shows a P-N junction diode with the P-region on the left and the N-region on the right. The P-region is connected to a terminal labeled +4V. The N-region is connected to a terminal labeled +1V. A resistor with a value of 30Ω is connected in series with the N-region.

  - (a) 'kU,k (b) 10<sup>&2</sup> , fElk,kj (c) 10<sup>2</sup> , fElk,kj (d) 10<sup>&3</sup> , fElk,kj
  
- 8- fLkFYkdKUK dk ÅTkKz vURkjYk 1-14eV gS vf/kdRkEk RkjXknS,kZ D,kk gkRkh fTKLk Ikj fLkFYkdKUK ÅTkKz dk vOk'kkS'.k IkjHk dj nXkk &
  - (a) 10888A° (b) 1088-8A° (c) 108-88A° (d) 10-888A°

- 9- mRØe vfHkfURk P-N Lkå/k dh vOk{k,k IjRk ds Ek/,k Eka &
- (a) fOkHko 'kå,k gkRkk gS (b) OkS| Bk {ksek 'kå,k gkRkk gS
- (c) fOkHOk vf/kdRkEk gkRkk gS (d) OkS| Bk {ksek vf/kdRkEk gkRkk gS
- 10- fn, Xk, IkfjIkFk Eka Mk,kkMl vkn'kZ gS fCkUnq A Ok B ds CkhPk Rkå/,k IkrRkjsk gks &



- (a) 20Ω (a) 10Ω (a) vURk (a) 40Ω

mÜkj EkkYkk 1-(c) 2-(c) 3-(c) 4-(b) 5-(b) 6-(d) 7-(b) 8-(a) 9-(d) 10-(d)

**fjDRk LFkkuk dh IkrRkZ dhfTk, &**

- 1- fn"Vdj.k ds fYk, ----- dk mlk,kkk djRks gS
- 2- v) PkkYkdka Eka v'kå) fEkYkkUs dh fØ,kk dks ----- dgRks gS
- 3- IjEk'kå,k RkkIk Ij v/kPkkYkd dh PkkYkdRkk ----- gkRkh gS
- 4- ----- vfHkfURk Eka P-N Lkå/k Eka gkYk dk Ikkkg N {ksek Lks P {ksek Eka gkRkk gS
- 5- LkåkkS'kh CkM RkFkk PkkYkuk CkM ds CkhPk ds ÅTkZ vURkjYk dks ----- dgRks gS
- 6- mHk,kfuk"B vk/kkj VRkTKLVj Ikk/kZd Eka fukXkRk RkFkk fukOk's kh fLkXUYk ----- dYkk Eka gkRks gS
- 7- v) PkkYkd dh ----- Ck<kUs Ij PkkYkdRkk Ck< TkkRkh gS
- 8- mHk,kfuk"B mRLkTKd IkfjIkFk Eka fukOk's kh RkFkk fukXkRk OkkS'V'S'k Eka ----- vAk dYkkURkj gkRkk gS
- 9- P- Ikdkj ds v) PkkYkd Eka vYIk Lkå/,kd Okkgd vOk's k ----- gkRks gS
- 10- NOT Xk/ Eka ----- fukOk's kh RkFkk ----- fukXkRk gkRkk gS

mÜkj & 1- P-N Lkå/k Mk,kkMl 2- MkS'kåk 3- 'kå,k 4- Ik'Pk vfHkfURk 5- OkfTRk ÅTkZ vURkjYk 6- LkEkkuk 7- RkkIk 8- 180 9- bYkDVURk 10- , d] , d-

# bdkbz 10

## I þkj byðvniudi

### vfRk Yk?kq mÜkj h, k Ik' Uk

- 1- fPkdRLkk ds {kæk Eka YkTj fdj .k dk dLks mlk, kkk djáks
- 2- Okk, kfk. MYk Eka mlkYK/k dksk Lkk IKRZ gS Tkks EkkUOk , Oka Tkhok TkURq/ka ds fYk, YkkHkdjh gS vkj dLks.
- 3- , kfn IKFokh Ij Okk, kfk. MYk Ukgha gkRkk Rkks D, kk mLkdK IK" Bh, k Rkkk mRkUkk gh gkRkk fTRkUkk dh vHkh gS
- 4- fok | þk PkqCkdh, k Rkj ákka ds fokfHé HkkXkka ds vkOfÜk Ij kLk dks LkRkck) dhfTk, A
- 5- CkSkUkh j ák ds Ikdk' k ds fYk, vkORkZkYk KkRk dhfTk, A
- 6- fLkXUkYk ds LkEIkSk. k Eka Ikdkf' kd RkURq dSkYk Rkj dh RkYkUkk Eka vf/kd LkqOk/kkTkUkd gS D, kka
- 7- 150kHz vkOfÜk ds j sM, kks Rkj ák dks IkLkKfj Rk djUks ds fYk, , fUVUkk dh vf/kdRkEk YkEckbz fdRkUkh gkXkh\

### Yk?kq mÜkj h, k Ik' Uk

- 1- mLk bykðVrfUkd , kqDRk dk UkkEk CRkRkks gq LkFPkæk fØ, kk fokf/k LkEkÖkkb, ks fTKLkLks gEk vøLkRk dh Nk, kkkkRk njLFk LFkkUk HkTkh TkkRk gS
- 2- fLk) dhfTk, fd vk, kEk EkkMv'kUk Eka CkSM PkkS/kbz EkkMv'kd Rkj ák dh vkOfÜk ds nks Xkqks ds Ckj kCkj gkRkk gS
- 3- VYkhQkSk fYkd D, kk gS bLkdks CYkkd vkj s[ k ds vk/kkj Ij LkEkÖkkb, A

### nh?kz mÜkj h, k Ik' Uk

- 1- Vs&Eks s EkkXkz Lks Ikdk' k fLkXUkYk dks mLkh RkhORkk ds LkFk Ckka/kRk njh Rkd Yks TkkUks ds fYk, fTKLk , kqDRk dk mlk, kkk fd, kk TkkRk gS mLkdh Lkj PKUkk dks LkFPkæk LkEkÖkkRks gq dk, kOf/k dk Ok. kkk dhfTk, A
- 2- , d Vh-Ogh- Vkkj dh ÁPkkbz 80 Ekh- gS , kfn Vkkj ds Pkkj ka vkj vkSkRk Lk[ , kk ?kURok 2000 IkFRk fdYkkEkVj<sup>2</sup> gks Rkks Vh-Ogh- IkLkKj .k }kj k fdRkUkh TkUkLk[ , kk dks dOkj fd, kk Tkk LkdRkk gS ¼kFokh dh f«kT, kk  $6.4 \times 10^6$  Ekh- gS

උග්‍රදායීතා පිළිබඳව

- 1- 150 Ekh- ආවේණික T.V. ආවේණික T.V. වලට වඩා වැඩි ප්‍රදේශයක් ආවේණික T.V. පිළිබඳව ප්‍රශ්න කරන විට  $6.4 \times 10^6$  Ekh- $\frac{1}{2}$ 
  - (a)  $4.92\pi \times 10^8$  Ekh<sup>2</sup> (a)  $19.2\pi \times 10^{84}$  Ekh<sup>2</sup>
  - (a)  $19.2\pi \times 10^8$  Ekh<sup>2</sup> (a)  $2.5\pi \times 10^8$  Ekh<sup>2</sup>
- 2- ප්‍රකාශන, චුම්බක ක්ෂේත්‍රයේ චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම්, චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් පිළිබඳව ප්‍රශ්න කරන විට
  - (a) චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් (b) චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම්
  - (c) චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් (d) චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම්
- 3- , d චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් පිළිබඳව ප්‍රශ්න කරන විට
  - (a) චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් (b) චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම්
  - (c) චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් (d) චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම්
- 4- TV ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට
  - (a) UHF (b) VLF (c) VHF (d) EHF
- 5- ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට
  - (a) ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට (b) ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට
  - (c) ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට (d) ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට
- 6- 6 KHz වැඩි ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට 2.8 KHz ජාලයේ වැඩි ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට
  - (a) 20 (b) 25 (c) 40 (d) 30
- 7- , d චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් පිළිබඳව ප්‍රශ්න කරන විට  $e = 15 \sin(10^6 t + 5 \sin 1200 t)$  චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් පිළිබඳව ප්‍රශ්න කරන විට
  - (a) 8 (b) 5 (c) 9 (d) 4
- 8- ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට, චුම්බක ක්ෂේත්‍රයේ වෙනස් වීම් පිළිබඳව ප්‍රශ්න කරන විට
  - (a) ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට (b) ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට
  - (c) ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට (d) ප්‍රකාශන පිළිබඳව ප්‍රශ්න කරන විට

- 9- XkkEkk fdj. kks X-fdj. ks RkFkk IkkkCkXkukh fdj. kka dh vkOkrk ØEk' k% a, b Ok c gS Rkk&
- (a)  $a > b > c$  (b)  $a < b < c$  (c)  $a = b = c$  (d)  $a > c > b$
- 10- vkOkrk EkkMYkrk Lkrkdka  $m_f$  gkrk gS &
- (a)  $\frac{S_{\max}}{f_m}$  (b)  $f_m S_{\max}$  (c)  $2f_m$  (d)  $\frac{f_m}{S_{\max}}$
- 11- Lkkrk dh Ikrk, k gkrk gS &
- (a) Ikrk. k LVs kuk (b) vfHkXkgh LVs kuk Ikk  
(c) Ikrk. k LVs kuk Ok vfHkXkgh LVs kuk (d) mlkj kDrk Eka Lks dkbZ Ugha
- 12- jSM, kks Lkrkj Eka fUkEukfyk [krk Eka Lks dkrk Lkk Lkrkj PkrkYk gS &
- (a) fUkkrk (b) vfHkXkgh. k Ykkbuk  
(c) Ikrk. k Ykkbuk (d) bukEka Lks dkbZ Ugha
- 13- , d IkkZ PkkYkdh, k Ik" B Ikk fOk | Bk PkrkCkdh, k Rkj k gkrk gS &
- (a) IkkZ vk' kks" krk (b) IkkZ IkkkOkrk  
(c) IkkZ Ikkj XkkfEkrk (d) vka' kd Ikkj XkkfEkrk
- 14- EkkMYkuk Lkrkdka dk Ekkuk Ck<Uks Ikk FM fLkXUkYk dh LkkEF, kZ &
- (a) ?kVRkh gS (b) Ck<Rkh gS  
(c) vkrfj OkrkRk jgRkh gS (d) bukEka Lks dkbZ Ugha
- 15- FM Ikkkj. k Eka Ikk kDrk vkOkrk gkrk gS &
- (a) VHF RkFkk UHF (b) Ek/ kEk Rkj kks  
(c) Yk?kq Rkj kks (d) Lkrk Rkj kks
- mÜkj EkkYkk & 1- (c) 2- (d) 3- (b) 4- (b) 5- (a) 6- (a) 7- (c) 8- (b)  
9- (a) 10- (a) 11- (b) 12- (a) 13- (b) 14- (c) 15- (a)

**fj DRk LFkkuk dh IkrkZ dhfTk, &**

- 1- Okk, kjk. MYk dk Okg {k&k fTKLEka Ekrk electron Ok vk, kuk gkrk gS ----- Ek. MYk dgYkkRkk gS

- 2- jfm, kks Rkjlk dh vkokfrk 10KHz gS Rkks mLkdh Rkjlk nS, kz ----- gA
  - 3- 0-3 RkFkk 0-4 EkkMfYkuk Lkpkdka d Okkykh nks sine Rkjlk, d Okkgd Rkjlk dks EkkMfYkRk djRkh gS Rkks dYk EkkMfYkuk Lkpkdka ----- gkxkha
  - 4- fuokkRk Eka 30km. PkYkUks Eka fok | Bk PkqCkdh, k Rkjlk dks ----- LkEk, k YkxkxkA
  - 5- EkkMfYkuk ds fyk, EkkMfYkRk Rkjlk dk U, kkkRkEk vk, kEk ----- gkRkk gA
  - 6- 100% EkkMfYkuk ds fyk, Ikk' OkZ CkSM dh LkkekF, kz PsB ----- gkRkh gA
  - 7- AM ds fyk, PkRkYk CkSM dh PkkS/kbz ----- gkRkh gA
  - 8- VHF dh vkokfrk IkfjLkj ----- Lks ----- MHz Rkd gkRkh gA
  - 9- JO, k fLkxkukYk dh vkokfrk IkJLk ----- Hz Lks ----- KHz Rkd gkRkh gA
  - 10- FM ds fyk, vkCkVrk dYk PkRkYk CkSM PkkS/kbz ----- gkRkh gA
- mUkjEkkYk &** 1- vk, kUk Ek. MYk 2- 30 fdEkh- 3- 0-5 4- 0-1 fEkYkh Lkd. M  
 5- 'kU, k 6- P/3 7- 45KHz 8- 30 Lks 300 9- 20 Lks 20 10- 200KHz