

இலங்கை உயிரியல் ஒலிம்பிக் - 2013



அறிவுறுத்தல்கள் :

, t; t; pdhj j hs; **A, B** Mfja , uz ;L gFj rfi sf; nfhz ;LssJ.

- **பகுதி A** , y; 40 gyNj uT t; pdhf; fs> nk hj j g; Gssr; fs; 40.
- **பகுதி B** , y; 20 Fwt; pi l t; pdhf; fs> nk hj j g; Gssr; fs; 60.

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vyyh t; pdhf; fs f; Fk; t; pi l vOJ f

Neuk; : 2 kz rj j pahyk;

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**பகுதி A - பல்பேர்தர வினாக்கள்**

1. fy t; l; j j pd; G2 mt; j i j a; y;

- (1) mi kgng hj j epw%uj j q; fs; k; j j pa Nfhl ; by; epi uahf , Uf; Fk;
- (2) mi kgng hj j epw%uj j q; fs; mtwWf; Fupa Ki d; fS f; F fj ; u; c; gfu z q; fs; %y; k; <uf; fgg l bUf; Fk;
- (3) mi kgng hj j epw%uj j q; fs; , d; Dk; gfugG (g; rd; Gwkbj y) mi l a t; i; y i y.
- (4) mi kgng hj j epw%uj j q; fs; j wNghJ xUkba epi y myyJ n epi ya; y; , Uf; Fk;
- (5) kdij c l wfyj j i; y; 92 FNuhkww; pd; E}y; fi sf; fhz yhk;

2. xsrj nj hFgG gwwpa rupahd \$wi wj ; nj upTnra; f.

- (1) xsrj nj hFj p II (Photo system II) , y; khj j ; uk; xsrj nj hFgG nghRNghup Nywwk; ei l ngWk;
- (2) xsrj nj hFgg; i; y; Rahj ; d xl r; ri d; j ; Nj hwWt; i; ggj wF xsrj j hf; f; j j pi d; j ; nj hl q; f; i t; ggj i; y; xs; pa; pd; Mukgg; gq; fs; i; gg m; j j paht r; pak hFk;
- (3) j htuf; fyj j i; y; ATP r; peNj R r; f; f; y; fs; i j yfNfha; pl ; nk d; r; t; i; y; khj j ; uk; , l kngWk;
- (4) t; l; i t; Lf; fhd xsp nghRNghupNywwj j ; wF xsrj nj hFj p II Nj i t ahFk;
- (5) xsrj ; j hoj j Yf; F e; l; pd; xsrj nj hFgG Nj i t ahFk;

3. t<sub>py</sub>qFf; fyqfs<sub>py</sub>; fynkdr<sub>t</sub>;T nj hl ughfr; rupahd \$wi wj; nj upTnraf.
- (1) fynkdr<sub>t</sub>;t<sub>pd</sub>; clgFj pi a Nehf;fp euehl i Kss thyfs; j pi rggLj; j ggLk;
  - (2) nkdr<sub>t</sub>;t<sub>py</sub>ss nfhOggk<sub>py</sub>qfs; , uli l g;gpi z gGfi sfi nfhz bUgg j <sub>py</sub> y.
  - (3) nghRNghy<sub>pggpi</sub> Lfs; xU Ki w cUthf;fggl i hy; mi t fynkdr<sub>t</sub>;t<sub>py</sub>; epi yahfj; j qf;paUf;Fk;
  - (4) Guj qfs; , Ugi l a<sub>pd</sub>Sns vOkhwhfg; guk<sub>gpa</sub>Uf;Fk;
  - (5) nghRNghy<sub>pggpi</sub> Lfs; fpi sfs; mwwi t.
4. NADP, NAD, ATP, Ji z nehj pak; A vdgd
- (1) g<sub>ppk</sub>qbd; ti sak; xdi wf; nfhz i i t.
  - (2) %dW ti saf; fl i i kgG xdi wf; nfhz i i t.
  - (3) ADP i af; nfhz i i t.
  - (4) bxl rpi uNgh] ; l fi nfhz i i t.
  - (5) %nghRNgw; \$l i k; xdi wf; nfhz i i t.
5. %fhnghl r<sub>py</sub>rf; mk<sub>py</sub> (TCA) t l i j j pd; mDNrg j j p<sub>w</sub>Fupa gqfs;gGj; nj hl ughfj; ~~suphah~~ g<sub>pd</sub>;t Ut dt wWs; vJ?
- (1) fhwWr; Rthrj j <sub>py</sub>; fhNghi tj NuwW xl r<sub>pnaw</sub>wj i j g; Guj j p nraAk;
  - (2) r<sub>py</sub> mk<sub>pn</sub>dh mk<sub>py</sub>qfs;pd; ca<sub>ppaw</sub>;nj hFgGf;fhd mDNrg K dNdhbfi s toqFk;
  - (3) Rthrr; r<sub>q</sub>f<sub>py</sub>rf;F NADH , i d toqFk;
  - (4) Nrj dr; Nrui t fs<sub>py</sub>UeJ CO<sub>2</sub> i t nts<sub>pt</sub>plk;
  - (5) ATP i aj; Nj hwWt pf;Fk;
6. Fojat d;\$l i l cUthf;Fk; ehu; ti ffs;
- (1) u<sub>gp</sub>A<sub>ypd</sub>> y<sub>pf</sub>d<sub>pd</sub>> mfupd; vdr; rupahfg; ngaupl ggLk;
  - (2) Ez GdFohafs> kNahrpd> Ez ; , i ofs; vdr; rupahfg; ngaupl ggLk;
  - (3) nfuwwpd> kNahrpd> mfupd; vdr; rupahfg; ngaupl ggLk;
  - (4) Ez ; , i ofs> , i l api ofs> Ez GdFohafs; vdr; rupahfg; ngaupl ggLk;
  - (5) mfupd> kNahrpd> , i l api ofs; vdr; rupahfg; ngaupl ggLk;
7. kdij fi; FUj papy; B- epz eluf; Fojaqfs; gpwngHUnsj p<sub>pp</sub>fi s cUthf;F t J l d; Ruf;Fk; mj d; Kj YUt<sub>pd</sub>; v<sub>f</sub>fl i i kgGfs; k<sub>pf</sub> edF t pUj j p ai l e j pUf;Fk?
- (1) mOj j khd mfKj YUr; r<sub>pw</sub>ti y khj j puk;
  - (2) mOj j khd mfKj YUr; r<sub>pw</sub>ti yAk; nfhy;fp c<sub>g</sub>fuz qfS k; khj j puk;
  - (3) mOj j kww mfKj YUr; r<sub>pw</sub>ti yAk; , i yNrhNrhkfs k; khj j puk;
  - (4) mOj j kww mfKj YUr; r<sub>pw</sub>ti yAk; nfhy;fp c<sub>g</sub>fuz qfS k; khj j puk;
  - (5) mOj j kww mfKj YUr; r<sub>pw</sub>ti y> nfhy;fp c<sub>g</sub>fuz qfs> , i yNrh Nrhkfs;







21. egu; xUtUF;F t;g; nj hdwpy; , lJ gff Kd; newwpa;py; fLi kahd mb Vwgl; lhy; gpd;tUk; nrawghLfs;py; vJ fLi kahfg; ghj pffgg; l bUf;ff; \$Lk?

- (1) rkepi y (2) NgrR (3) ghui t (4) Nfll; y; (5) Qhgfk;

22. , t;t;pdh gpd;tUk; t;mwkpd;fi s mbggi l ahaf; nfhz ;lJ .

- P - t;mwkpd; K Q - Nghy;pf; mkpyk; R - t;mwkpd; E  
S - gNahw;pd; T - i j akpd;

kdj; f; Fl;ypYss xdWfnfhdWJi z ahe; j di kAss gww;paht;pdhy; Nj hwWt; pffgg; LtJ NkwFwj; j t;mwkpd;fS s; vJ?

- (1) P, Q khj; j; puk; (2) P, T khj; j; puk; (3) P, Q, S khj; j; puk;  
(4) Q, R, S khj; j; puk; (5) R, T khj; j; puk;

• **23 ஆம் 24 ஆம் வினாக்கள்** kdj; DfFj; Nj i tggLk; gpd;tUk; %yf;fq;f; s;pd; \$l; l; qfi s mbggi l ahff; nfhz ;l d.

- A - Mg, Cu, Cl, Zn B - Ca, P, Na, Fe C - Fe, N, S, Se  
D - Cr, Zn, Mn, I E - F, Ca, Na, S;

23. kdj; DfFj; Nj i tggLk; Rt; l; l; %yf;fq;f; s; khj; j; puk; nfhz ;lJ NkwFwj; j \$l; l; qfS s; vJ?

- (1) A (2) B (3) C (4) D (5) E

24. neh; j; pa VtYff;Fj; Nj i tahd %yf;fq;f; s; khj; j; puk; nfhz ;lJ NkwFwj; j \$l; l; qfS s; vJ?

- (1) A (2) B (3) C (4) D (5) E

• **25 ஆம் 26 ஆம் வினாக்கள்** fNo j ugg; l; Lss l e; j kb;pd; q;f; s;pd; cz i t mbggi l ahff; nfhz ;l i t.

இனங்கள்	உணவு
A	t;pyq;F g; s;hej; d;
B	j htug; g; s;hej; d;
C	Moej; el; j; j htug; f; s;
D	kb; f; s;
E	f; pu; Numpah; f; s;

25. NkwFwj; j , dq;f; s; py; vej , dk; Mff; \$ba Fl; y; e; s / c; l; y; e; s t; p; f; j; j; i; j c; i; l; a; J?

- (1) A , dq;f; s; (2) B , dq;f; s; (3) C , dq;f; s;  
(4) D , dq;f; s; (5) E , dq;f; s;



30. gpi wNahd; (prion) vdwWhy; vdd?
- (1) xU Guj k;
  - (2) Guj Ti w mww nj hwWj yi l ej RNA.
  - (3) Primer RNA , wfhd gbj j fL (template) Mfg; gz pGupAk; DNA nj hl up.
  - (4) , i okz paww Mukg Af;fupNahw;
  - (5) nry j ht u Nehafspid; nj hwWk; fUtp
31. gqfR nj hl ughd rupahd \$wi wj ; nj upTnraf.
- (1) vyyhg; gqfRfS k; epyj j pw;Fupa mqf;pfshFk;
  - (2) gqfRf;fs; mi raj j ff tjj j pfi sf; nfhz bUggj pyi y.
  - (3) fUrNruFi fapd; gpd;du> cl dbahf xLqfw; gupT ei lngWk;
  - (4) m] Nfhi kfNfhwwh gqfRf;fs;pd; , yiqf kwWk; , yiqf;ky; tjj j pfs> tjj j pff;yyj j pDs; cUthFk;
  - (5) grpbNahi kfNfhwwh gqfRf;fs> mtwwpd; thofi f tli;k; KOtJk; fpi s nfhz ;l> , UfUf;\$l;L epi yAss gupRtUss Grz tpi ofi s cilait.
32. Fbj nj hi f xdwpy; kpf cauthd ghukgupa khwi yf; fh;l;LtJ gpd;tUt d twWs; vJ?
- (1) rp] upf; i gGNuhrp] ; (cystic fibrosis)
  - (2) gy;tpuYi li k
  - (3) fj puhspapd; epwk;
  - (4) mupthS Uf; fy FUj prNrhi f
  - (5) nts;py;
33. DNA , d; gpd;Gwkbj ypy; (gfuggpy) gpd;tUk; eprfo;Tfs; , l kngWf;pdwd.
- A- epugGf;pdw %yqfS fF , i lapYss gpi z gGfs; cilAk;
- B- epugGf;pdw %yqfS fF , i lapy; gpi z gGfs; cUthFk;
- C- DNA %yf;\$W / Kwff;tpOk;
- D- vj pu; gl bi ffs; gupAk;
- E- ntyy - nghRNgw; gpi z gGfs; cUthFk;
- F- xtnthU gl bi fapYk; epugGf;pdw epA;ff;ps;Nahi ul;LFS l d; Rahj l d epA;ff;ps;Nahi ul;Lfs; tupi rapyi kAk;
- , eepfo;Tfs; vdd xOqfpy; ei lngWk?
- (1) A, C, F, D, B, E
  - (2) C, A, D, F, B, E
  - (3) C, F, A, D, E, B
  - (4) D, C, A, F, E, B
  - (5) D, F, C, A, B, E





- 37 ~~புதி~~ 38 ~~புதி~~ ~~வினாக்கள்~~, gpd;tUk; thAffi s mbggi l ahff; nfhz ;i t.

- A- fhgdhuhl i ri ;L
- B- kNj d;
- C- fej ftihuhl i ri ;L
- D- FNshNuhGNshNuhfhgd,fs;
- E- i ej urd; xli ri ;Lfs;
- F- fhgNdhnuhl i ri ;L

37. gri r tli ;L tpi s TfF \$bastiy;gqfsgGr;nrat;J NkwFwpggpl ggl i t wWs; vi t?

- (1) A, B
- (2) A, C
- (3) A, B, C
- (4) A, B, C, F
- (5) A, C, D, E

38. mkpy ki ofsy; \$basT gqfsgGr; nrat;J NkwFwj j t wWs; vi t?

- (1) A, B, D
- (2) B, C, D
- (3) C, D, E
- (4) C, E
- (5) D, F

39. , t;tdh gpd;tUk; #ownwhFj pfi s mbggi l aha;f; nfhz ;i J.

- A- ghi yeyqfs;
- B- ki yrhuej fhLfs;
- C- fz ;lyfs;
- D- cyu; fygGf; fhLfs;
- E- KI; fhLfs;

ri j ggpbgghd , i yfS l dh d j ht uqfs; , Uj j y; NkwFwj j vr#oy; nj hFj pi a NtWgpupj ;J mwaj j ff rpwggpayghFk?

- (1) A, B, E
- (2) A, B, C
- (3) A, C, D
- (4) A, C, E
- (5) A, D, E

40. t;trhar; nrawghLfs;d; #oY fFupa j hf;fk; ~~அப்பொழுது~~ gpd;tUt d t wWs; vJ?

- (1) kz ; mujgG
- (2) kz ; cggj y;
- (3) thopl qfi s , oj j y;
- (4) mkpy ki ofs;
- (5) cyfshtpa ntggkhj y;

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**பகுதி B - குறுவிடை வினாக்கள்**

- தரப்பட்ட வெற்றிடத்தில் விடை எழுதுக.
- தவறுசெய்து தரப்பட்ட எழுத்துக்கள், இலக்கங்கள் அல்லது அடைவானங்களை மாத்திரம் பவன்படுத்துக.

1. fyk; xdW> Fwjj j Guj j i j cwgjj p nra;t J l d; Ruf;fjpdwJ . vqfs; j wNghi j a mwTf;F Vwg , rnrad;Ki wfs l d; nj hl uGgl;l mf;f;l;i kgGfi s khj j p k; gl bayry;Ue;J nj upTnraf. (nrad;Ki wfs;pd; rupahd xOq;f;ry; , yffqfi sg; gl bayrLf.)

- |                                |                  |
|--------------------------------|------------------|
| 1. ngnuhfr;Nrhk;               | 2. , i uNghNrhk; |
| 3. nfhy;f; cgfuz k;            | 4. RugG Gl fk;   |
| 5. Kj Y U nkdr;t               | 6. Gdntwwpl k;   |
| 7. mOjj kww mfKj YUr; r;Wt i y | 8. , i yNrhNrhk; |
| 9. nfhz ;Lnryyy; Gl fk;        |                  |

f;l;i kgGfs;pd; rupahd xOq;F : .....

2. xLf;fwg;put;pd; Nkd;K ft t j i j I, , i oAUgg;put;pd; Nkd;K ft t j i j nj hl ughf rupahdJ g;pd;tUK; \$wWFS s; vJ? mt j i j fS f;F vj p;hfj; j ugg;l; ntw;pl;j;j;ry; fNoAss gl bayry;Ue;J rupahd , yffqfi s vOJf. epw%uj j qfs;pd; cg myFfs; mi uep;wTUffs; vdgi j f; ft dj j p; nfhs.f.

1. epw%uj j qfs; Ki dTfS f;F mi r;f;pdwd.
2. j d;ahd mi uep;wTUffs; Ki dTfS f;F mi r;f;pdwd.
3. mi rAk; epw%uj j qfs; , uz ;L mi uep;wTUff; s;f; nfhz ;Lssd.
4. gukgi uayF xdw;pd; , uz ;L vj p;Uff; s; epw%uj j qfs; fhTk;
5. epw%uj j qfs;pd; xU xUkbaj; nj hFj p xt;nthU Ki dffk; mi rAk;
6. xt;nthU fyj j p;Fk; ehd;F f; j p; Ki dfs; cz ;L.

1. xLf;fwg;put;pd; Nkd;K ft t j i j I .....
2. , i oAUg; g;put;pd; Nkd;K ft t j i j .....

3. t; yqF xdw Kdj ssgLfdw njhz i li aAk; , uz ;L flGssifi sAk; ci laJ. gdtUk; , ayGfi s , t; t; yqF nfhz bUggd; "✓" vdw mi lahsj; i jAk; , t; t; yqF nfhz buht; bd; "x" vdw mi lahsj; i jAk; FwggpLf.

Jz ;Lgl y;	
Jz ;LJz ;lhj y;	
j i yahFnray;	
<uyyqfj; j di k	
Gwf; fUf;fll y;	
Fl kgp epi yfs;	

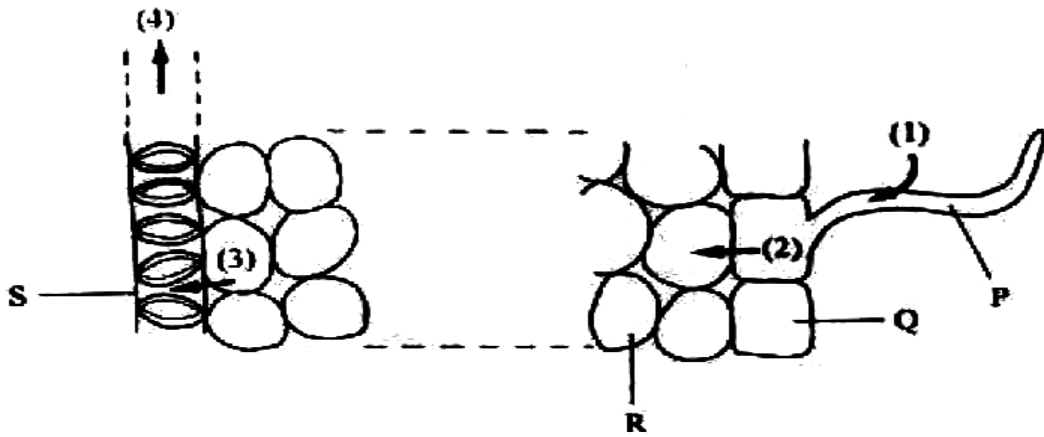
4. mqfjjpd; / fyjjpd; cUthf;fj; py; njhl uGgl l fyggpT ti fi aAk; fyqfs;pd; kba epi yi aAk; (ploidy) FwggpLf. , i oAUggpT wF I xLf;fw; gpTf;F II vDk; mi lahsj; i jg; gadgLj Jf.

முடிவம் / சேவம்	செய்தியை வகை	செய்தியின் மிகுந்தியை
t; j; J %bAs; pfs;pd; t; j; j ft; pi oak;		
kfuej kz p		
t; j; J %bAs; p;pd; Kl i l		
ghr; p;pd; t; j; j p		
, i oKj y;		
ghr; p;pd; t; p; J		
gd; d Gz u; j; j htuk;		
gd; d j; j pd; t; j; j p		
gd; d j; j pd; Kl i l		

5. jhtu tsurr; g; ghuj; qfi s mtw; pd; nj hopy; fS l d; , i z f; Ff. rupahd t; pi li a "✓" vdTk; gpi oahd t; pi li a "x" vdTk; Fw; j; J f; fh; l; Lf.

செய்தியை	செய்தியை	ABA	செய்தியை
1. gff; tUkG tsurr; pi a C fF t; j; j y;			
2. , i ytha; %Li fi a C fF t; j; j y;			
3. gok; fd; j; i y C fF t; j; j y;			
4. crr; pahl r; p			
5. taj; hj y; j hkj ki l j y;			
6. t; j; J cwq; Fepi yi a Mukg; j; j y;			
7. fy; t; p; pi t C fF t; j; j y;			

- 6 Mk;7 Mk; tpdhf;fs;Nt upypUeJ , i yfS fF gj huj j q;fs;pd;nfhz ;Lnryyi y vLj ;J f;fhl ;Lk; gpd;t Uk; t upggl j i j mbggi l ahff; nfhz ;l i t.



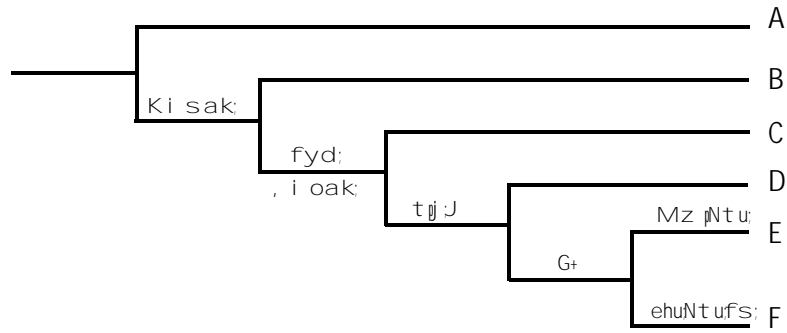
6. nghUj j khd nfhz ;Lnryyy; ghi j i a / nradKi wi aj; nj upTnraJ rup vd;pd; "✓" vdTk; gpi o vd;pd; "x" mi l ahsj i j Ak; gpd;t Uk; ml ;l ti z apy; FwpggpLf.

, ayG	1	2	3	4
capugghd nfhz ;Lnryyy;				
gpurhuz k;				
rpkgjsh] ;l; ghi j				

7. P,Q,R,S vdg twwpi l Na gpd;t Uk; , ayGfi s f;nfhz ;l fyqfi sj ;nj upTnraf. rupahd tpi l fi s "✓" mi l ahsk; %yk; FwpggpLf.

	P	Q	R	S
cauthd el;Oj j k;				
Fi wthd mK f;f mOj j k;				
j bj j fyrRtu				
cz Tr; NrkpgG				

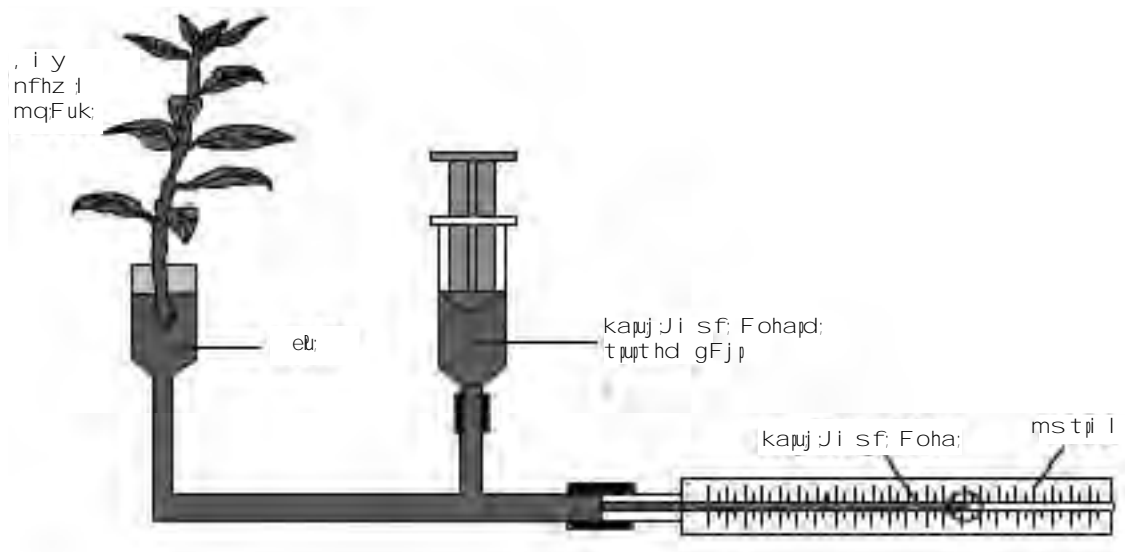
8. jhtu thofi f tli j j y; \$uggpd; gupj hd epfo;Tfs; , t;tuggl j j y; vLj J f; fhli ggl Lssd.



vej j frd; (taxon) , y; B - F ti uAss gpd; t Uk; , ayGfs; , Uffpdwd. rupahd tpi l i a / tpi l fi sr; "✓" vdTk; gpi oahd tpi l i a / tpi l fi sg; "x" vdTk; FwpggpLf.

Qandq	B	C	D	E	F
<upyyKss tj j j; jhtuk;					
Rahj bk; Fi wej Gz upj; jhtuk;					
Rahj bk; Fi wej tj j j; jhtuk;					
fUf; fi j Y f; F el; Nj i tahFk;					
elz j J }uq; fS fF , dq; fs; gukgyi l a KbAk;					
mi rtww tpe; J fs;					
fhNghd; ngu] ; fh l by; fhz ggLk;					

9. el; NknyLjji y (uptake) mstplTj d; %yk; ntli ggl;l mqFuj j pd; Mt pAapugi g mstplTj wF cwQrdkhdpi ag; gadgLj j KbAk;



gpd;t UK; \$wWfs; rupahpd; "✓" vdTk; gpi oahpd; "x" vdTk; FwpgpLf.

A	cwpQrdkhd; toi kahf elpd; fNo nghUjj ggLfWJ	
B	fhwWf; Fkppfs; Nj hdWkNghJ cgfuz jjwF ntspNa el u mfj;J wpQRtj wF el; epukgja GFjjp gadgLfWJ.	
C	mqFuk; jhtujj pypUeJ ntl;ggli;Tld; ntl;ggli; gFj p t] yb; , lggli;L %lggli; Ntz ;Lk;	
D	mqFuj; j f; fUi kahd gsh] upf; i gapdhy; ci wapyLj y; MtpAapugi gf; Fi wf;Fk;	
E	mi rtww> <uygGss tsapy; MtpAapugG t] k; cauthf , Uf;Fk;	
F	ntggkhd> cyuej mi rAk; tsapy; MtpAapugG t] k; kpf cauthf , Uf;Fk;	
G	el; NknyLjj y; t] Kk; MtpAapugG t] Kk; vgnghOJk; rkkhf , Uggj pyi y.	
H	el; %yf;\$Wfs f;F , i la pyhd Fi wthd gpi z T , ayGfs; cwpQrdkhd; gupNrhj i dary; gurrpi di a cUthf;Fk;	
I	cwpQrdkhd; gupNrhj i dard; NgWfs; mstw; u] pahdj hf , Uggj pyi y.	

10. tpyqFfs; i Na fhz ggLk; foitqf fl; i kgGfs; fNo j uggli;Lssd. Aupf;  
mkpyj; j f; foithff; foif;Fk; tpyqFfs; mi t , Uggd; "✓" mi lahs  
j; j Ak; Aupf; mkpyj; j f; foithff; foif;Fk; tpyqFfs; ~~2013~~ "x"  
mi lahs; j; j Ak; , Lf.

kyghpad; r; wFohafs;	
foelufqfs;	
gRQRuggpfs;	
r; Welufqfs;	
Gf;fs;	

11. mfQRuf:Fk; nj hoji yAi l a nṣy mqf:qfs> mt wṣṣdhy; Ruf:fḡḡLk; XNkhd:fs> , t; XNkhd:fsṣd; , yfF fl:li kgGfs; vdgḡ ḡṣd:tUk; ml:iti z aṣy; j uggl ;Lssd.

அக்டோகீதம் தொழிலுள்ள அங்கம்	ஒலிகள்	இலக்கூ கீட்டகற்படி
A: guhi j nuhapl ;	P: Gun[ ] uNuhd;	i. rṣWFly;
B: #y:tṣj j fk;	Q: guhj ;XNkhd;	ii. Ki yr; Ruggṣfs;
C: #yfk;	R: TRH	iii. rṣWelufk;
D: guṣt ff:fb;	S: <] u[ ṣd;	iv: K wḡf:f fḡrRuggṣ

Nkw:Fwṣj j ml:iti z i a mbḡḡi lahff; nfhz ;L> Ruf:Fk; mqf:k; - XNkhd; - , yfF fl:li kgG (mqf:k) vdgṣt wṣṣd; ruṣahd 10 Nruf:i ffi s> mej ej vOj J fi sAk; , yff:qfi sAk; ḡadḡLj j ṣf; FwṣḡḡLf.

1. .... 2. .... 3. .... 4. .... 5. ....  
6. .... 7. .... 8. .... 9. .... 10. ....

12. kdṣj dṣd; ntḡḡ rṣhff:yṣdNḡhJ ei l ngWk; nṣy eṣfo:Tfs; fNo j uggl ;Lssd.

ntḡḡk; ngWk; i kak; J }z ;lḡḡLkNḡhJ ei l ngWk; eṣfo:Tfi s "✓" vDk; mi lahsk; %yKk; ntḡḡk; ngWk; i kak; J }z ;lḡḡLkNḡhJ **நடைமுறை** eṣfo:Tfi s "x" mi lahsk; %yKk; FwṣḡḡLf.

tṣau i t r; Ruggṣṣṣd; nrawḡhL mj ṣfuf:Fk;	
mj ṣd yṣd; nrawḡhL eṣNuhj ṣf:fḡḡLk;	
kokogḡhd j i rehuf:ṣd; RUf:fk;	
t d;\$l ;Lj ; j i rehuf:ṣd; RUf:fk;	
F Nuhr ] ; Fkṣṣṣd; Ki d J }z ;lḡḡ y;	

13. ḡṣd:tUtdt wWs; nṣy 7 , Yk; Fi wej ṣH l f; nfhz ;Lssd. , j i d "✓" mi lahsk; %yKk; 7 , Yk; \$ba ṣH l f; nfhz ṣUḡḡṣd; "x" mi lahsk; %yKk; FwṣḡḡLf.

c kṣoel;	
c j urrhW	
Nahdṣkl y;	
Rf:fṣyḡGl fg; ḡhak;	
F l wrhW	



14. Ez :Z apay; i fj nj hory;fs; ehd:F gupj hd El gqfi s mbggi la hff; nfhz :l d.

- i. Ez z qf;fs; , Wj p tpi snghUshFk;
- ii. Ez :Z apug; nghUs;fs; , Wj p tpi snghUshFk;
- iii. Ez :Z apur; nradKi wfs; , Wj p tpi snghUshFk;
- iv. , Wj p tpi snghUi sg; ngWtj wF ghukgupa khwwpai kgGr; nraaggl;l mq;f;fs;

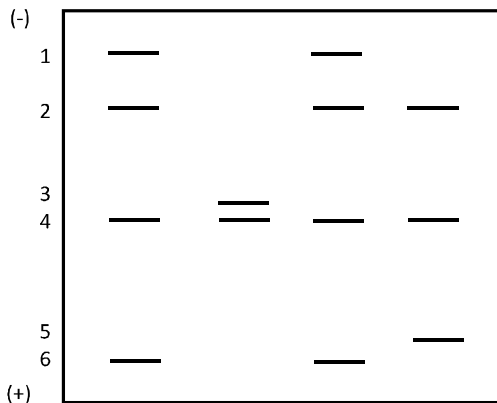
gpd;t Uk; Ez :Z apay; c wgj j p;fs;pd; c wgj j p;ay; nj hl uGgl;l nghUj j khd gupj hd El gj;i j j; nj upTnraJ> nghUj j khd \$l bDs; "✓" mi lahsj;i j , Lf.

பூண்டுபயிற்சித் திட்டப்பகுதிகள்	i	ii	iii	iv
t pdhf;up				
ngd;r;ypd;				
nrq;fz ;khup;F (Hepatitis) vj puhd eluggl;l dkhf;fy; fUt p				
nrkG gupj nj LgG				
c apu; - Grrpnfhyyp;fs; (Bio - insecticides)				
, dRypd;				
c apuggupfhuk;				

15. j ei j fFupa epw%uj j k; L, M, n vd;Dk; vj pUuf;fi sf; nfhz ;LssJ. j ha;t op epw%uj j k; l, m, N vd;Dk; vj pUuf;fi sf; nfhz ;LssJ. j d;ahd FwFFg; gupkhwwj j pd; ngWNgwhfj; Nj hwWt p;f;f;\$baJ gpd;t Uk; epw%uj j qfS s; vJ? rupahd tpi li a "✓" mi lahsk; %yKk; gpi oahd tpi li a "x" mi lahsk; %yKk; FwpggpLf.

(i)	L, M, N	
(ii)	L, M, n	
(iii)	L, m, N	
(iv)	L, m, n	
(v)	l, m, n	

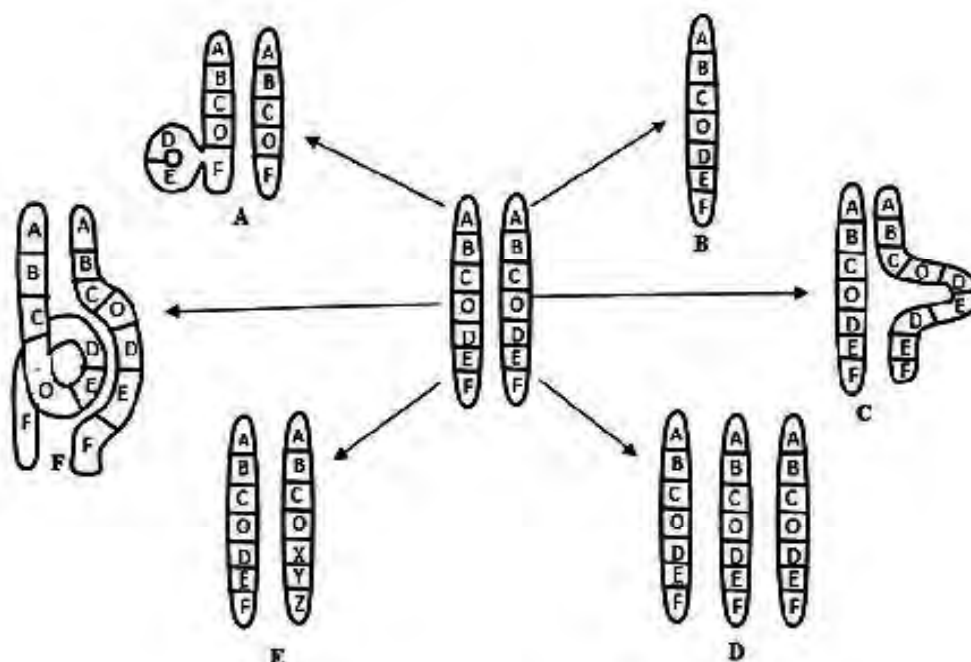
16. j ha; (M) mwıaggl;lK; j ei j A myyJ B Mz hfTk; , UfFk; gısi s C , d; j fggdhu; gwwıpa gız f;Fı d; , t;tıpdh nj hl uGgl;lJ. gynyhOf;F (multi-loci) DNA Mapi ag; (probe) gadgLj jı gısi s C> j ha; M> , U Mz ;fs; A, B MfıNahupı kılUe;J ngww FUjııay; DNA tııy; mi l ahsk; (finger printing) epi wNtwwggl;lJ. NgW gıd;t UK; tııggı j jııy; fhı;l ggl;lSsJ.



gıd;t UK; epi yi kfs f;F xj j DNA gl bapd; vz i z j; nj upTıra;J cıpa nghUj j khd \$ııby; ruı mi l ahsjı j , Lf.

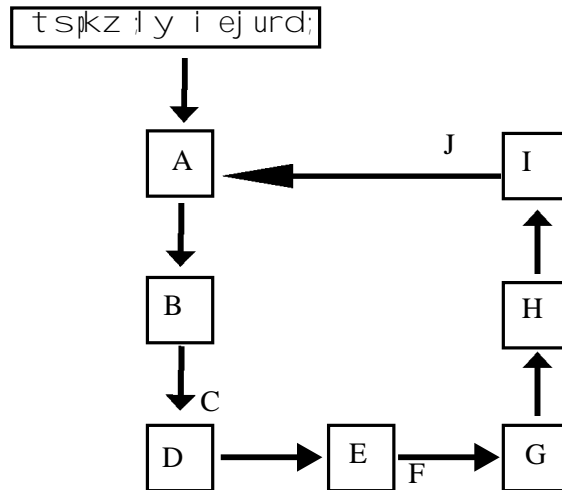
	1	2	3	4	5	6
DNA Gwtı uapd; (profile) kııf;F; Fwııpa gl b						
vyyh Mz ;fs f;Fk; nghJ thd gl b						
kdıı Uf;Fg; nghJ thd gl b						
vyyhg; ngz ;fs f;Fk; nghJ thd gl b						
capıay; j ei j f;Fk; gısi s f;Fk; nghJ thd gl b						

17. nttNtW ti fahd epwııuj j tııfhuqfi s; fNo j uggı;lSs tııggı k; fhı;l fııwJ. epwııuj j tııfhuqfııpd; ti ffi sr; ruıahd vOj;J %yk; FwııggııLf.



1. Neukhwy;	
2. eF,fk;	
3. j dP%uj j K sS	
4. , ul b j j y;	
5. K k;%uj j K sS	
6. nfhz ;Lnryyy;	

18. i ejurd; t l i j j d; nk h j j t u g g l k; fNo j u g g l ;L s s J.



g p d ; t U k ; n r a d ; K i w f s ; / g j h u j j q f s ; x t n t h d i w A k ; F w p g g p L k ; N k w ; F w j j  
 t u p g g l j j p Y s s r u p a h d v O j i j j ; n j u p T n r a ; J > n g h U j j k h d \$ I b D s ;  
 v O J f .

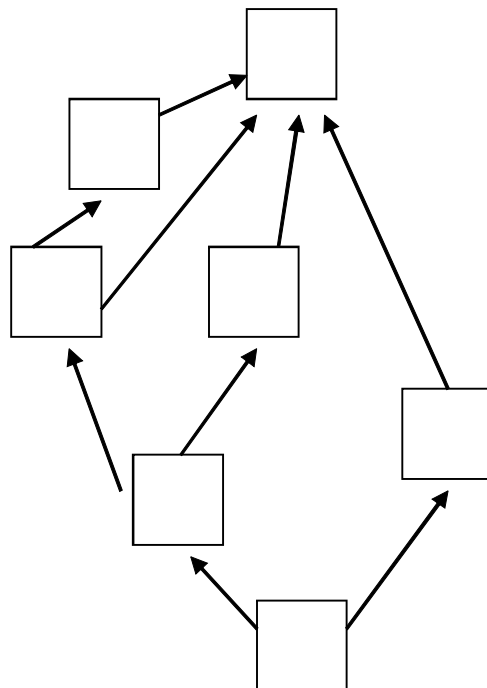
mNkhdpaht hf,fk;	
i e j j pNuwwhf,fk;	
j h t u g ; G u j q f s ;	
i e j j pNuwwFs;	
kz z pYss Nrj d i e j u r d ;	
t p y q F g ; G u j k ;	
mkpNdh mkpyqfs;	
mNkhdpak; mad,fs;	
i e j j p i u w W f s ;	
c l n r Y j j y ;	

19. , yqi fajd; nghqFKf #ownwhFj pfs; nj hl ughd gy \$wWfs; fNo juggl;Lssd. rupahd \$wWfi s "✓" mi lahsK; %yKk; gpi oahd \$wWfi s "x" mi lahsK; %yKk; FwpggpLf.

ctujj di k fly; elpYk; ghuf;ff; Fi wthFk;	
Nghri z cssl f;fk; rKjj pjj j tpl caut hdj hFk;	
capug; gy;ti fi k rKjj pur; #ownwhFj p;f;Fk; eddl;	
#ownwhFj p;f;Fk; , i la py; , U;f;Fk;	
Kj yhd cwgj j g j p;wd; rKjj pur; #ownwhFj p;f;Fk; eddl; #ow;	
nwhFj p;f;Fk; , i la py; , U;f;Fk;	
fl Yl dhd nj hLi f rpy rkaqfspy; kz y; j i l fshy; %l g;	
gl bU;f;Fk;	

20. gpd;tUtd til;Lj; Nj hl i r; #ownwhFj p;ay; fhz ggLk; rpy mq;f;p;fs; MFk;  
 A: Nj i u      B: nt l;L;f;p;      C: rhi ug; ghkG      D: Gy;  
 E: fOF      F: Kay;      G: Xz hd;

fNo juggl;Lss , r#ownwhFj p;ajd; cz T ti ya py; nghUj j khd vOj i j g; gadgLj j p Nkw;Fwjj mq;f;p;fs;p; rupahd epi yi af; FwpggpLf.



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