FWC

யாழ். வலயக் கல்வித் திணைக்களத்தின் அனுசரணையுடன்
தொண்டைமானாறு வெளிக்கள நிலையம் நடாத்தும்

Field Work Centre

தவணைப் பரீட்சை, யூலை - 2015
Term Examination, July - 2015

தொழில்நுட்பவியலுக்கான விஞ்ஞானம்	புள்ளித்திட்டம்	தரம் :- 12 (2016)

பகுதி - I

01)	4	11)	4	21)	1
02)	5	12)	2	22)	5
03)	3	13)	3	23)	3
04)	2	14)	1	24)	4
05)	5	15)	3	25)	3
06)	5	16)	1	26)	1
07)	4	17)	4	27)	2
08)	3	18)	3	28)	2
09)	3	19)	2	29)	4
10)	2	20)	3	30)	4

பகுதி - II

mikg;Gf; fl;Liu

1)

A.

i) P - jiy
Q - DNA
R – Guj ciw
S – thy;
T – mb

ii) கல அமைப்பு அற்றது, உயிர் கலங்களினுள் மட்டுமே தொழிற்படும் உயிர் கலத்திற்கு வெளியே பளிங்காக காணப்படும்.

iii) i – Saccharomyces, Acetobacter
ii – Yeast
iii – Lactobacillus
iv – Methano coccus
v – Methano bacillus, Methanonas

B.

i) A – Nju;T nra;j DNA.
B - gpsh];kpl;
C – kPs; ,izf;fg;gl;l
D - cl;GFj;jy;

ii) fyk; xd;wpy; fhzg;gLk; DNA apd; tpup gug;G RUsp tbit cilj;J epA+f;fpspf; mkpyj;njhlupy; cilit Vw;gLj;jp Njitahd ,ay;igf; nfhz;l DNA I mjpy; cl;GFj;jp Gjpa DNA I cUthf;fy;

iii) G+r;rp vjpu;g;Gj; jd;ikAs;s jhtuq;fs;> Neha; vjpu;g;Gj; jd;ik nfhz;l jhtuq;fs; cUthf;fg;gly;> tpw;wkpd; nrwpT epiwe;j muprp cw;gj;jp (Golden rice)

iv) Gujj;jpd; Kjd;ikahf fl;likg;G

v) Celulose – β FSf;NfhR
Starch – $\propto$ FSf;NfhR
Chitin – FSf;NfhR
nfuw;wpd; - mkpNdhmkpyk;

C.

i) fpwP]; jahupg;G> kh[upd; jahupg;G> rikay; vz;nza; jahupg;G

ii) ntg;gepiy> fPo;g;gilr;nrwpT> nehjpar; nrwpT

iii) Vit A – Rhodopsin ghu;it epwg;nghUs; Mf;fj;jpw;F
Vit B – Rthrj;jpy;> Jiznehjpakhf
Vit C – nfhyh[d; ehu;j;njhFg;G
Vit D – Ca mfj;JWQ;ry;

iv) nrYNyhir rkpghlilar; nra;Ak; nehjpak; kdpj czTf; fhy;tha; njhFjpapy; fhzg;glhik.

2) i) a) - mfj;jhil
b) - Nut (efu;itj; jLj;jy;)
c) - gpujhd mstpil (mq;Fyk;)
d) - gpujhd mstpil (cm)
e) - Mok; msf;Fk; Nfhy;
f) - Ntdpau; mstpil
g) - Gwj;jhil (6 x 1 = 6 Gs;sp)

ii) Gwj;jhil
(5 Gs;sp)

iii) thrpg;G = 2.7 + 870.01
= 2.7 + 0.08
= 2.78cm
(4 Gs;sp)

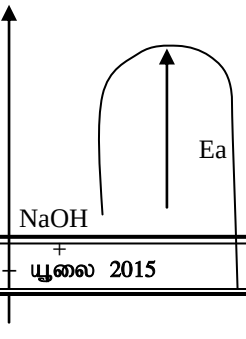
iv) thrpg;G = 2.78-0.01
= 2.77cm
(5 Gs;sp)
(20 Gs;sp)

fl;Liu tpdh

1) i) epak epiyapy; rkg;gLj;jg;gl;l rkd;ghl;bw;fika xU jhf;fk; epfOifapy; Vw;gLk; ntg;gTs;Siw khw;wk; jhf;f ntg;gk; vdg;gLk;.

ii) a) %yf;$Wfs; xd;Wld; xd;W Nkhj Ntz;Lk;
b) %yf;$Wfs; nghUj;jkhd jpirapy; Nkhj Ntz;Lk;
c) xU Fwpj;j ,opT rf;jpia my;yJ mjdpYk; $Ljyhd ,af;fr; rf;jpia NkhJk; %yf;$Wfs; nfhz;bUf;f Ntz;Lk;

iii)



Ea – Vtw;rf;jp

HCl

$NaCl + H_2O$

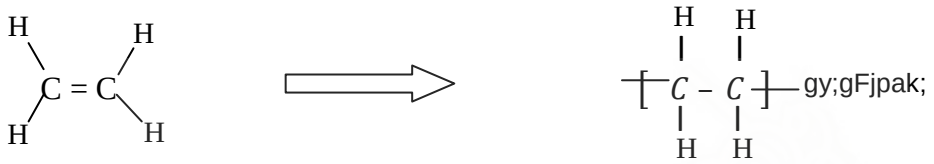
jhf;fg;ghij

iv) jhf;fKWtjw;F NkhJifAWk; %yf;$Wfs; nfhz;bUf;f Ntz;ba ,opTrf;jp Vtw;rf;jp (Ea) MFk;. Vtw;rf;jpahdJ xU rf;jpj; jilahFk; mjd; gUkd; jhf;fj;jpw;F jhf;fk; NtWgLk;.
Vtw;rf;jpia tpl Fiwahd rf;jpAila %yf;$WfSk; NkhJk; vdpDk; ,k;%yf;$Wfs; Nkhjpa gpd;du; tpyFk;.
jhf;fnkhd;wpd; tPjk; Vtw;rf;jpapy; (Ec) jq;fpapUf;Fk;. Vtw;rf;jp FiwtilAk; NghJ mjpYk; $Ljyhd rf;jpiaf; nfhz;l %yf;$Wfspd; vz;zpf;if mjpfupf;Fk;. vdNt gaDs;s NkhJiffspd; vz;zpf;if cau;tjhy; jhf;ftPjk; mjpfupf;Fk;.

2) rpWFwpg;G vOJf.

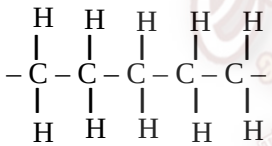
i) nghypvjPd;

vjpyPd; %yf;$Wfs; xd;Wld; xd;W njhlu;Gw;W cUthFk; ngupa %yf;$W nghyp vjpyPd; MFk;. (vjpyPdpd; gy;gFjpak;)

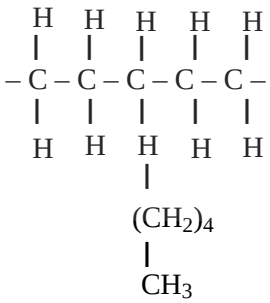


cw;gj;jp nrad;Kiwf;Nfw;g rpy gFjpaq;fs; Neu;Nfhl;L tbtpYk;> fpis nfhz;ljhfTk; %yf;$Wfs; xd;Wld; xd;W FWf;Fg; gpizg;Gf;fisf; nfhz;l gy;gFjpaq;fshfTk; fhzg;gLfpd;wd.

Neu;Nfhl;L nghyp vjpyPd;

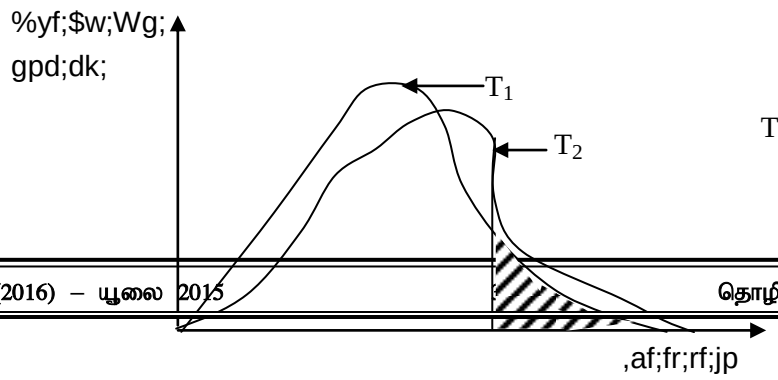


fpis nfhz;l nghyp vjpyPd;



ii) jhf;ftPjj;jpy; ntg;gepiyapd; nry;thf;F
ntg;gepiy mjpfupf;ifapy; ,af;frf;jp mjpfupg;gjhy; myF Neuj;jpy; epfOk; NkhJiffspd; vz;zpf;if mjpfupf;Fk;. vdNt myF fhyj;jpy; epfOk; gytpj (gaDs;s) NkhJiffspd; vz;zpf;if mjpfupf;Fk;.

rpwpa ntg;gepiy cau;tpd; NghJ mNef jhf;fq;fspy; Vtw;rf;jp jhz;br; nry;Yk; rf;jpiaf; nfhz;l %yf;$Wfspd; gpd;dk; ngupJk; mjpfupg;gjdhy; tPjk; mjpfupf;Fk;. kf;];ngy; Nlhw;Rkhdpd; rf;jpg; guk;gy; tisap %yk; mjpfupf;Fk;. kf;];ngy; Nghw;Rkhdpd; rf;jpg; guk;gy; tisap %yk; ,jid tpsf;fyhk;.



3) gy;gbj; jhf;fk;

gy gbKiwfspD}L eilngWfpd;w ,urhadj; jhf;fq;fs; gy;gbj; jhf;fk; vd miof;fg;gLk;.

$2(N_2O_5 \rightleftharpoons NO_2 + NO_3)$

$NO_2 + NO_3 \rightarrow NO_2 + NO + O_2$

$NO + NO_3 \rightarrow 2NO_2$

$2N_2O_{5(g)} \rightarrow 4NO_{2(g)} + O_2$

gygbfspy; jhf;fk; epfOk; NghJ nkJthf epfOk; jhf;fNk> gy;Kiwj; jhf;fnkhd;wpd; tPjj;ij epu;zapf;Fk;.

4) Cf;fpfs;

Cf;fpahdJ jhf;fnkhd;wpd; nghwpKiwia khw;Wtjdhy;> mjd; Vtw;rf;jpiaf; Fiwthd xU ngWkhdkhf;Fk;. vdNt ,e;j Vtw; rf;jpia tpl $Ljyhd rf;jpiaf; nfhz;l %yf;$Wfspd; vz;zpf;if mjpfupf;Fk;. vdNt myF Neuj;Js; epfOk; (gad;ghL) gytpj NkhJiffspd; vz;zpf;if mjpfupf;Fk;. vdNt jhf;ftPjk; mjpfupf;Fk;.

,uz;L tif

1. Vftpid Cf;fp $\xrightarrow{NaOH_{(ag)}} O_{2(g)} + 2H_2O_{(l)}$

   cjhuzk; $2H_2O_2$ Cf;fpAk; jhf;fpAk; ntt;NtW ngsjpf epiyapy; fhzg;gLk;.

2. gy;ypd Cf;fp

   Cf;fpAk; jhf;fpAk; ntt;NtW ngsjpf epiyapy;

   cjhuzk; :- $2H_2O_{2(ag)} \xrightarrow{MnO_{2(s)}} 2H_2O_{(l)} + O_{2(g)}$

5) i) $2\pi r = 4.4$

$r = \frac{4.4}{22} \times \frac{7}{2}$

$= \frac{0.2 \times 7}{2}$

$= 0.7\text{m}$

$= 70\text{cm}$

(4 Gs;sp)

ii) $l^2 = 2.4^2 + 0.7^2$

$= 5.76 + 0.49$

$= 6.25$

$l = 2.5m$

(4 Gs;sp)

iii) $^1/_3\ r^2h$

$= \frac{1}{3} \times \frac{22}{7} \times 0.7 \times 0.7 \times 0.8$

$= \frac{2.2 \times 0.56}{3}$

$= 1.23cm^3$

(4 Gs;sp)

iv) $\pi r\ell$

$^{22}/_7 \times 0.7 \times 2.5$

$\frac{22}{7} \times 0.25$

5.50

(4 Gs;sp)

v) $\frac{1}{2}$ gq;fpy; (3 Gs;sp)

vi) $\frac{2.4}{3}$

rPnke;Jfis $= \frac{22}{7} \times 0.7 \times 0.7 \times 0.4$

$= 0.8\,m$

$1.2 - 0.8$

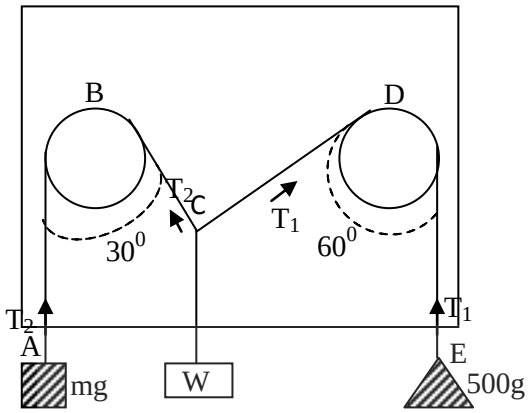
rPnke;J $0.4m$

$= 2.2 \times 0.28$

$= 6.16m^3$

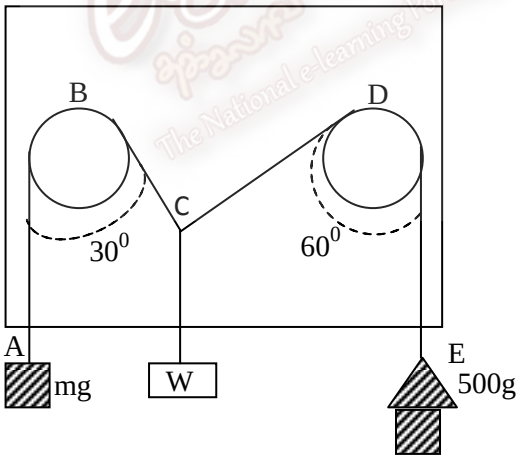
6) a) tpjp (5 Gs;sp)

b) i) (6 Gs;sp)

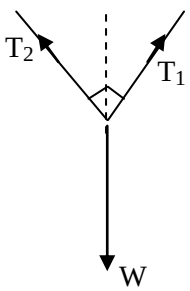


ii) kPz;Lk; gioa epiyf;F tUk; (2 Gs;sp)

iii) rkr;rPuhf ,Uf;Fk; (4 Gs;sp)



iv)



$T_1 = \frac{500}{1000}$ x10

= 5N

(3 Gs;sp)

$T_1 sm60 = T_2 sm30$ (3 Gs;sp)

$5 \times \sqrt{{}^{3}/_{2}} = T_2 \times \frac{1}{2}$

$T_2 = 5\sqrt{3}N$

$Mg = 5\sqrt{3}N$ (3 Gs;sp)

$T_1 cobv + T_2 cu30 = wg$

$5 \times \sqrt{{}^{1}/_{2}} + 5\sqrt{3} + \sqrt{{}^{3}/_{2}} = wg$

${}^{5}/_{2} + {}^{15}/_{2} = wg$

${}^{w}/_{2} = wg$

$w = \frac{10}{10}$ (4 Gs;sp)

$= 1kg$ (30 Gs;spfs;)