

*Kwl..l cj # Dbqb -z*  
SCHOOL OF AGRICULTURE AND RURAL DEVELOPMENT  
*ersj vt`k D>gŷ wekte`ij q*

**BAE 2106**

***eb I Rie%wPI`***  
**FOREST & BIODIVERSITY**

*tj LK*  
***W. Gm Gg i yj Augb***  
*ersj vt`k Kwl..MteI Yv KivDwYj*

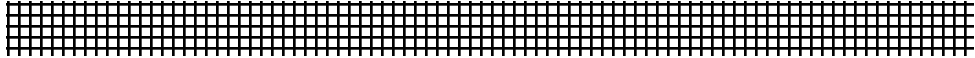
*m=uv`K*  
***W. tgv tZudv4j Bmj ug***  
***W. Av b g Augby ingub***  
*Kwl..l cj # Dbqb -z*  
*ersj vt`k Dbŷ wekte`ij q*

*i Pbv%kj x m=uv`K*  
***W. tgv tZudv4j Bmj ug***  
*Kwl..l cj # Dbqb -z*  
*ersj vt`k Dbŷ wekte`ij q*

*m=uv`K (wZiq ms`i Y)*  
***W. tgv AveZvtje***  
*Kwl..l cj # Dbqb -z*  
*ersj vt`k Dbŷ wekte`ij q*

---

G tKim@BilU tidwii KZ& ubix#Yi ci evsj it`k Db&# nekpe` ij tqi Kul.  
I cj#Dbqob -z Gi QvTf`i Rb" gnyZ ntqtQ|



*eb I Rie%aPI*

**FOREST & BIODIVERSITY**

**BAE 2106**

*Kul. I cj # Dbqb -z*

**SCHOOL OF AGRICULTURE AND RURAL DEVELOPMENT**



ಎಸ್‌ಜಿ‌ವಿಠ್‌ಕೆ ಡಿ‌ಒ‌ಗೈ ಐ‌ಕೆ‌ಐಠ್‌ವಿ‌ಜಿ‌ಎ

# eb I Rie%aPI`

(BON O JEEBABOICHITRA)  
FOREST & BIODIVERSITY

**m`uv` bv cui I`**

mfvciZ t **W. Aveynbv tgv dviK**  
 ersj vt` k DbHj nekje` ij q

m`m` t **W. tgv tZvdv%j Bmj vg**  
 ersj vt` k DbHj nekje` ij q

**W. Av b g Augby ingub**  
 ersj vt` k DbHj nekje` ij q

**W. tgv tgvk`y ingub**  
 ersj vt` k DbHj nekje` ij q

**tgv mi l qui tnvmb tP%aj**  
 ersj vt` k DbHj nekje` ij q

**W. tgv kun Avj g mi Kvi**  
 ersj vt` k DbHj nekje` ij q

**W. tgv m%qmDvi b igqv**  
 e%eUzKL gyRej i ngvb Kvl .nekje` ij q

mmeR ZE%eartb  
 Wxb  
 Kvl .I cj # Dbqb`z  
 ersj vt` k DbHj nekje` ij q

---

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**B A E 2106**

## **eb I Rxe%aPÎ**

### **FOREST AND BIODIVERSITY**

Òeb I Rxe%aPÎ`Ó weGMGW tcÙMâgi GKwU tKvm@B| G  
tKvm@BwU `iKqYi QvÎ`i Dc`hvMx Kti iPbv Kiv  
nâqâQ| tKvm@BwU wefbaBDwbU eb I e`bi ,iÿ;  
e`bi aib, ebR e`ji tivM I tcvKvKo Ges Zvi  
câZKvi, Rxe%aPÎ` I câZtek c`wZi Ici ZvÊK I  
e`enwiK weiq,tjv AZ`šl mnRfvte Dc`lcb Kiv  
nâqâQ|

**ISBN 984-34-5009-4**

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eb l etbi i ži

cRwzi MvQ| cinnwo eb cūq 0.67 ugij qb tn±i RvqMv Ržo we`Z| G ebnĀtj i cūq 75%  
cūKwZKfite mō|



ipĀ 1 t cinnwo eb

epĒi Ljbr l  
K· evRvīi Ptkwi qvq  
mgf i tRvqi fivUvhŷ  
tjvbr cwb AĀtj th eb  
t`Lv hvq ZvK g`vbĀMōf  
ev j eYvŷeb etj |

**g`vbĀMōf ev tjvbr cwb i eb**

epĒi Ljbr A\_ŷ Ljbr, evĀMinvU l mvZŷxv tRj v Ges K· evRvi tRj vi Ptkwi qvq mgf i  
tRvqi fivUvhŷ tjvbr cwb AĀtj th eb t`Lv hvq ZvK g`vbĀMōf ev j eYvŷeb etj |  
wekpeL`vZ mŷ i eb g`vbĀMōf eb| eisj vt`tki mŷ i eb wekpe gta` GKK fzĀU meĀPtq eo  
j eYvŷeb| G etbi cāvb MvQ mŷwi | ZvQvov iĀqĀQ tMI qv, Mivb, tKl ov, KūKov, aŷj,  
evBb, tMvj cvZv, tnZvj BZ`w` | G eb cūq 0.59 ugij qb tn±i Gj vKv Ržo we`Z|



eb l etbi , i ži

IPĪ 2 t g`vb`MŌF er j eYv`yeb

MvRxc`ji i fvl qvt`ji Mo, Uv`zvBj l gqgbwms`tni gax`ji Mo, w`bvRcy l iscy tRjvi kij eb`K mgZj figi eb ej v nq|

**mgZj figi eb**

MvRxc`ji i fvl qvt`ji Mo; Uv`zvBj l gqgbwms`tni gax`ji Mo; w`bvRcy l iscy tRjvi kij eb`K mgZj figi eb ej v nq| Gme etbi c`avb e`l n`jv kij | Ab`vb` Mv`Qi g`ta` KoB, nj `yni`MvRv, ev`uij w`v D`tj L`thvM`| kij eb gj-Z c`KwZK f`ite Mto l t`v| G eb`K MRwi ebl ej v nq|



IPĪ 3 t mgZj figi eb

emZewo l Gi Av`tkcvt`ki Lwvj RvqMvq thme MvQc`jv t`Lv hvq Zv wbtqB `Zwi nq MŏgxY eb|

**MŏgxY eb**

emZewo l Gi Av`tkcvt`ki Lwvj RvqMvq th mg`l MvQc`jv t`Lv hvq Zv wbtqB `Zwi nq MŏgxY eb| m`vavi YZ t`tki Pwv`vi c`ŏq 80% KvW, Rvj wvb KvW Ges et`ki Pwv`v G ai`bi MŏgxY eb ev emZewo n`Z tgUv`bv nq| t`tki c`ŏq 0.27 wgvj qb tn`i Rvgt`Z G ai`bi ebn`Atj i w`v`Z| Avg, Rvg, KvWj , wj Pz`wki , KoB, tgnMwb, bwv t`Kj , m`g`wi , Zvj , tLRj , et`k l Ab`vb` e`uwa MvQ MŏgxY et`b i t`qtQ|



**Ablyj b (Activity) t** evsj v`tki newfbaaitbi etbi c`avb c`avb MtQi bvg wj ucex Kily|



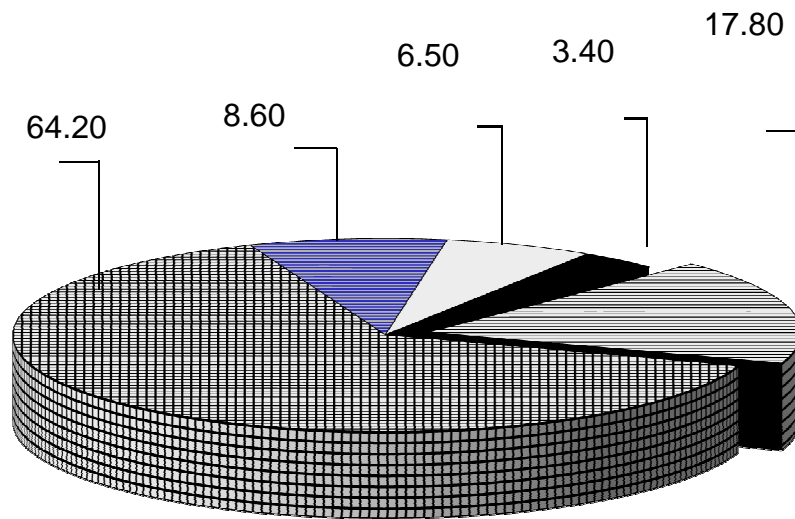
evsj v`tki ebfigi cwi gvY tgvU figi 17.8%| G ebfigi 10.3% eb Awa`Bti i Avl Zvaxb, 5.1% A`kivfZ eb, 1.9% MlgxY eb Ges 0.05% Gj vKv Rjo Pv l ivevi evMvb|

**evsj v`tk etbi cwi gvY**

evsj v`tk ebfigi cwi gvY tgvU figi 17.8% (A\_ŕ 2.56 wjwq qb tn±i)| G ebfigi gta` 1.49 wjwq qb tn±i (A\_ŕ 10.3%) eb Awa`Bti i Avl Zvaxb, 0.73 wjwq qb tn±i (A\_ŕ 5.1%) A`kivfZ eb hv trjv c`kvm`Ki Avl Zvaxb, 0.27 wjwq qb tn±i (A\_ŕ 1.9%) i`qtQ e`w`g wjwq Kivvaxb MlgxY eb Ges 0.07 wjwq qb tn±i (A\_ŕ 0.05%) Gj vKv Rjo Pv l ivevi evMvb i`qtQ| uPT 5-G ebfig l Ab`vb` figi cwi gvY t`Lv`bv n`qtQ (d`ti ÷ gv ÷ vi c`avb-1993)|



▣ ebf,wg   ▣ K...wIRwg   ▣ kniv`Aj   □ Rjvf,wg   ■ Ab`vb`



uPT 5 t evsj v`tk ebfig, Kwl.Rwg, kniv`Aj, Rjvf,wg l Ab`vb` Rwg kZKiv cwi gvY (%)

evsj v`tk ebfigi cwi gvY c`q 17.8% ntj l Zv mvi v`tk mgfite me`Z bq| AwaKvsk ebfig t`tki ce` l `wYce`Aj Ges `wYc`w`g v`Aj Aew`Z| me`k` c`w`g l DEi c`w`g v`Aj ebfigi cwi gvY LjB Kg| cwi t`tki fvi mig` i`vi Rb` G cwi gvY eb LjB Ac`Z`| Kv`RB etbi cwi gvY evov`bri c` t`c`c` tbqv c`qvRb|









eb RxeRŠi ūbivc` Aveim`j | eṭbi gj`erb Kv, gay c`icvL, tFIR MvOcijv veṭ`tk iBmb Kṭi `eṭ`kk gŷ ARḪ Kiv hvq|



eb I ebm`u` Avgvṭ`i e`w³MZ, cwi emi K I RvZxq Rxeṭbi GK Acwi nvh` Abŷ½|



**wevea KgRvṭŪ eṭbi Ae`vb**

eb RxeRŠi ūbivc` Aveim`j | eṭb eimKvix eb`cŪYx, thgb- eiN, nwiY, eibi, nwiZ, ebweovj, eb`iKi, wefbaeiṭbi cvL, mvc, e`vO, Kugi, , Bmvc I Ab`vb` mi xmc, tgŠgwiQ I Ab`vb` KxUcZ½ cFwZ. ebm`u` msi ḡṭY , iāzcy`fvgKv cij b Kṭi \_vṭK| ebm`u` AṭbK tjvṭKi RweKvi Ab`Zg cāvb Aejaḅ, thgb- Rjvmb Kv, gay trvMjv cvZv, tMjv cvZv cFwZ. msMḥ Kṭi eū tjvK RweKv ūbeṭh Kṭib| eb SoZvrb I eb`v t\_ṭK iḡv Kṭi | eṭbi gj`erb Kv, gay c`icvL, tFIR MvOcijv veṭ`tk iBmb Kṭi `eṭ`kk gŷ ARḪ Kiv hvq| ZvQvov eb chḪb ūkṭi i cāvti cāvb fvgKv cij b Kṭi |

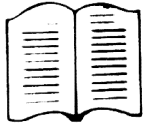
Dcṭi i Avtj vPbv t\_ṭK Avgiv ūbōqB Abḡveb KiṭZ cwi th, eb Ges ebm`u` Avgvṭ`i e`w³MZ, cwi emi K Ges RvZxq Rxeṭbi GK Acwi nvh` Abŷ½| Avgvṭ`i e`w³MZ Ges RvZxq A\_Ḫwzi wekvj GK Ask ebm`uṭ`i I ci ūbfṖkxj | AZGe ūbūḪvq ejv hvq th, Avgvṭ`i RvZxq Rxeṭb eṭbi A\_ḪwzK , iāz; Acwi mvg|

ṭPṬ 9 t tgŠgwiQ mŷ i eṭbi Ab`Zg A\_ḪwzK m`u`

ṭPṬ 10 t mŷ i eṭbi gŷwMÄ nZ cvṭi GKw PgrKvi chḪb ṭK>`



**Ablyj b (Activity) t** Avcbvi gžZ etbi cāvb A\_ %bWZK , i aži Ky? hly<sup>3</sup>mn Zv wj wce<sup>x</sup> Ki ab |



**mvi gg<sup>ot</sup>** eb l ebm<sup>au</sup>` Avgv<sup>t</sup>`i Rxeb<sup>t</sup>K mevi Aj<sup>t</sup>ŋ" cūZ gyt<sup>z</sup>mg<sup>x</sup> Kti Ptj<sup>t</sup>Q | Avgv<sup>t</sup>`i Rxebavi<sup>t</sup>Yi DcKi<sup>t</sup>Yi A<sup>t</sup>bK wKQ<sup>3</sup> eb t<sup>\_</sup>tK Drcb<sup>3</sup> KI<sup>t</sup>Ki j v<sup>1</sup>/<sub>2</sub> -tRvqvj l Ab<sup>vb</sup> Kwl .hšc<sup>w</sup>Z, Avmevec<sup>Ī</sup>, Niemo, wewfbæai<sup>t</sup>bi hibeirnb, w qvkj vB<sup>t</sup>qi K<sup>w</sup>w l ev , `e`y<sup>z</sup>K L<sup>w</sup> c<sup>f</sup>wZ. `Zwi i Rb` Avgiv Kv<sup>t</sup>Vi l ci wbf<sup>p</sup>Kyj | mvi v<sup>t</sup>`tk Drcw<sup>z</sup> Z Kv<sup>t</sup>Vi cūq 65% Ryj w<sup>b</sup> wnt<sup>m</sup>te e`eüZ nq | Mv<sup>t</sup>Qi wKko, evKj, cvZv ev Ab<sup>vb</sup> Ask t<sup>f</sup>IR DcKi<sup>t</sup>Yi cāvb D<sup>r</sup>m | t<sup>\_</sup>tki eü wki Kvi Lvbv, thgb- KY<sup>3</sup>žx Kv<sup>m</sup>t<sup>r</sup>i wj, tiqb Kvi Lvbv, wnt<sup>j</sup> t<sup>u</sup>i gū Kvi Lvbv, Ljybv w<sup>b</sup>DRw<sup>c</sup>ū Kvi Lvbv c<sup>f</sup>wZ. Pj<sup>t</sup>Q ebR K<sup>r</sup>pv<sup>t</sup>Yi i l ci w<sup>f</sup>w<sup>3</sup> K<sup>t</sup>i | eb ōviv cūK<sup>w</sup>ZK cūZi ŋ<sup>v</sup> t<sup>\_</sup>qvj m<sup>w</sup>oi gva<sup>t</sup>g t<sup>\_</sup>ktK SoS<sup>Ā</sup>v, UtY<sup>3</sup>w<sup>v</sup>, R<sup>t</sup>j v<sup>o</sup>Qym BZ<sup>w</sup> i ŋ<sup>w</sup>Z t<sup>\_</sup>tK eūj vs<sup>t</sup>k i ŋ<sup>v</sup> Kiv m<sup>ae</sup> | eb t<sup>\_</sup>tK gayRyj w<sup>b</sup> Kv<sup>v</sup>, t<sup>n</sup>vMj v cvZv, t<sup>m</sup>vj cvZv BZ<sup>w</sup> m<sup>s</sup>M<sup>3</sup> K<sup>t</sup>i A<sup>t</sup>bK t<sup>j</sup>vK R<sup>w</sup>ekv w<sup>b</sup>ef<sup>n</sup> K<sup>t</sup>i <sup>\_</sup>v<sup>t</sup>K | Kv<sup>t</sup>RB eb l ebm<sup>au</sup>` Avgv<sup>t</sup>`i e<sup>w</sup>3MZ, cwi ewi K Ges RvZxq R<sup>x</sup>etbi Acwi n<sup>w</sup>Ab<sup>1</sup>/<sub>2</sub> |



## cu#VvEi gj'iqb 1.2

### m#K DEti i cu#k #K #Pý (✓) w b|

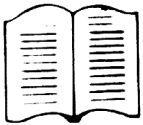
- 1| t`tki ebm#ú` i I ci wfiE Kti Kx Mto I tV?  
K) eo eo Ni emo  
L) wki Kvi Lvbr  
M) hvZiqvZ e'e`vi AeKvWtgv  
N) w#v c#Zôrb
  
- 2| eb t`tki A#bK tj w#Ki Rb` Kx?  
K) Avkq`j  
L) c#Zi #vi c#vb Dcivq  
M) RmeKvi Ab`Zg c#vb Ae# #b  
N) ti vMej vB t`tK i #vi Dcivq
  
- 3| K#i wktí e`eüZ K#vgtj i c#vb Ask Kx?  
K) evk I teZ  
L) teZ I j Zv#br MvQ  
M) evk, teZ I j Zv#br MvQ  
N) eo eo e#
  
- 4| RxeRši c#vb wbi v#` Avkq`j tKv#U?  
K) emoNi  
L) eb  
M) t#ZLvgi  
N) cvnmo Gj vKv
  
- 5| K#i wR, Avq#e# I tnmgl I I# wktí i c#vb K#vgtj tKv`v t`tK cvl qv hvq?  
K) eb t`tK  
L) Kj Kvi Lvbr t`tK  
M) t#ZLvgi t`tK  
N) emZemo t`tK

### cW 1.3 etbi cwi tekMZ , ižj



#### G cW tkłl Avcrb –

- Rj eqy l ci etbi cfve wKifc Zv e`vL`v Ki tZ cvi teb |
- cłKwZK `thvł cłZt`vta etbi figKv eYb`v Ki tZ cvi teb |
- evqy`Uj tK weix` i vLv l cwi tek msi q`tY etbi figKv Avtj vPbv Ki tZ cvi teb |
- Rxe%vP`T` msi q`tY etbi Ae`vb wj LtZ l ej tZ cvi teb |
- wP`Ew`etbv` tb etbi Ae`vb evStq wj LtZ cvi teb |



eb cłYxi tetP`vKvi Rb`  
me`aK , iZcY`Dcr`vb  
Aw` tRb w`bqgZ mieivn  
Kti Ptj tQ |

#### eb Kxfite cwi tek tK c`fweZ Kti

eb Kxfite Avgt` i A`\_`vWZtK mgx` Kti Ptj tQ Zv Avgiv cvW 1.2 t`\_tK tRt`vQ | A`\_`vWZK , iaz`Qovovl eb bxi te Ges A`\_k`fite gvbymn c`w`extZ wePiYkxj mKj cłYxi tetP`vKvi Rb` me`aK , iaz`cY`Dcr`vb Aw` tRb w`bqgZ mieivn Kti Ptj tQ | GQovovl GwU gvbymn mKj cłYxi Rxebarit`Yi Rb` Dch`y` cwi tek m`v`i t`q`T` GK AwZ , iaz`cY`f`igKv cvj b Kti Ptj tQ | eb kã`\_`tY l c`mb`\_`tY ti`vta , iaz`cY`f`igKv cvj b Kti | eb g`m`Uj DeP`Zv Ges f`Mf`c`v`mbi `li evx`tZ mnvqZv Kti | GQovovl eb eb`v, SoRtjv`Qm, any So BZ`w` ti`vta mnvqZv Kti | GLv`tb cwi tek msi q`tY etbi Dtj`m`LZ , iaz`mg`a` mwe`\_`t`i eYb`v Kiv ntqtQ |

#### K. Rjeqy l ci etbi cfve

Avgiv Rmb th, tKv`bv GjvKvi RjeqyH GjvKvi g`m`U, f`c`KwZ, b`b`x, mg`j`i `bKU` m`te`f`cwi ebr`Aj `v`iv w`bq`S`Z ntq`\_`v`K | eb e`ZixZ Ab`vb` , t`j`vi m`v`g`m`K cwi eZ`b` mvab gvbyl`i c`t`q`l m`e`b` bq | w`K`S` gvby ebr`Aj e`e`\_`rcbri gva`tg Rjeqy w`Zkxj i vL`tZ ev cwi eZ`b` NUv`Z cvti | eb Kxfite Rjeqy l ci cfve we`\_`li Ki tZ cvti Zv w`b`P` mst`q`t`c weeZ ntj v–

- eb cłKwZK cwi tek kxZj , m`y`i , g`t`b`v`ig l `v`\_`K`i i v`L` |
- etbi MvQ cł`\_`^`t`bi gva`tg Rj xq` evt`u`i cwi gvY evx` Kti ev`v`c`vZ NUvq |
- eb g`m`U`Z `Rec`\_`v`\_`m`i`eivn Kti figi DeP`Zv evovq |
- eb P`ig`f`v`e`v`c`b`A`v`eivl q`v`K` mg`f`v`e`v`c`b`K`ti t`Z`v`t`j |
- eb evqy MvZ`teM w`b`q`S`y` Kti |
- eb c`mb`P`μ (Hydrological cycle) w`b`q`S`y` Kti |
- eb M`ib` n`v`DR B`td`± (Green house effect) ti va Kti |

evr`Aj e`e`\_`rcbri  
gva`tg Rjeqy  
w`Zkxj i vLv ev  
cwi eZ`b` NUv`Z hvq |



eb gwUŋq I fūgaŋm tiva Kti Ges So, Rtjv`Qŋtmi ZxeZv nmm Kti |

**L. cŋKwZK `jhuŋ**

eb cŋKwZK `jhuŋMi Avk¼v Ges ŋqŋwZi cwiŋvY nmm Kti | MwQcvjv Kveŋ-WwB-A. vBW MŋY Kti Ges evqŋZ Aw †Rb tQto w`tq evqŋ Dcv`v`bi fvi mvg` i ŋv Kti | eb gwUŋq I fūgaŋm tiva Kti Ges So, Rtjv`Qŋtmi ZxeZv nmm Kti | eb gwUŋq tiva Kti etj b`b`x bve`\_v`K I eb`v Kg nq |

**M. evqŋŪj wei× ivLv I cwiŋek** wP 11 t cŋKwZK `jhuŋ cŋZti vta Dckj xq AĀtj ebrvq msi ŋŋY

**eb Aw †Rb `Zwi i KviLubv**

eb evqŋŪj i Aw †Rb I Kveŋ-WwB-A. vBtWi fvi mvg` Z\_v cwiŋek msi ŋŋY AZ`śl , ižcY© fūgKv cvj b Kti |

evqŋŪj ubv`ŋ cwiŋvY Aw †Rb I Kveŋ-WwB-A. vBW iŋqŋQ | gublymn mKj cŋYx kŋmckŋtmi mgq Aw †Rb MŋY Kti Ges Kveŋ-WwB-A. vBW Z`vM Kti | hu` tKv`bv KviŋY evqŋŪj i ubv`ŋ Kveŋ-WwB-A. vBtWi cwiŋvY teŋo hvq, Zte Zv cū extZ gublymn mKj cŋYKŋj i RiebariŋYi Rb` gvi vK SŋKcY©ntq `wvq | MwQ gubŋj i cwi Z`³ Kveŋ-WwB-A. vBW MŋY Kti Ges Avtj vK mstkdŋYi gra`tg cŋqvRbxq Aw †Rb `Zwi Kti Zv evZv`m tQto t`q | eb evqŋŪj i Aw †Rb I Kveŋ-WwB-A. vBtWi fvi mvg` Z\_v cwiŋek msi ŋŋY AZ`śl , ižcY©fūgKv cvj b Kti |

**eb evqŋkvaK**

etbi MwQ evZv`m tŋm teovt`v QvB, avj KYv, ti Yy I wlv³ i vmqubK M`vm tkvly Kti cwiŋek wei× ivL |

MwQ iayth cŋYxi cwi Z`³ Kveŋ-WwB-A. vBWB iŋl ubt`Q Zv bq | Avgv` i evqŋŪj tŋm teovt`Q AZ`śl ŋŋžwZŋŋž² avj Kbv, QvB, ti YyGes wvfbæcKvŋi i vmqubK M`vm | wvfbæ wktŋi eR© I hvbevntbi Kvtjv taqvB gj-Z Gmtei Dm | Gmtei KviŋY gubŋj i mavi Y A`vj wRŋn K`vYvi tivM chśl ntZ cvŋi | etbi MwQ Gme QvB, avj KYv, ti Yyl wlv³ i vmqubK M`v`mi A`bK Lwb tkvly Kti ubtq cwiŋekŋK wei× ivL | wKš` evqŋŪj Gme QvB, avj KYv, ti Yyl wlv³ i vmqubK M`v`mi cwiŋvY AvksKvRbK nvti evx cvt`Q wvavq Acŋž MwQcvjv Zvi m½ Zvj wgvj tq cwiŋekŋK wei× ivL tZ cvitQ bv | dtj etbi MwQ ubtRB GLb Gmtei ŋv v ŋŋZMŋnt`Q Ges GKB mvt\_ gubŋj i Rb` I Zv gvi vK SŋKcY©ntq I VtQ |

**eb evqŋkxZj Kvi x**

eb evqŋŪj i DòZv evx i Rb` vqx wvfbæ aitbi M`vm wqšŋYi gra`tg evqŋŪj †K kxZj ivL tZ mrvh` Ki tQ |

Mŋb nvDm cŋZwµqv i dtj evqŋŪj i DòZv µgvMZ teŋo Pŋj tQ | evqŋŪj i DòZv µgvMZ evx i dtj cežŋkYx KZR. aŋi ivLv eitdi A`bK Lwb Mtj hvte Ges cwi bi AvqZb evx cvte | dtj mgŋj` cwi bi D`PZv teŋo hvte Ges Kvj µtg mgZj I wbaŋŋ cwi te wZ t` kmgr mgŋj` i ubtP Zvj tq hvte | GKBmvt\_ AvZevó I Abveŋoi AvksKv I t`Lv t`te wvfbæ AĀtj | dtj A`bK cŋYx I Dv`c cŋwZ vej ŋ ntq hvte |

Mŋb nvDm cŋZwµqv i Ab`Zg cŋvb Kvi Y nt`Q wvRŋto wvfbæfwi wki t`ŋK wBZ Kveŋ-WwB-A. vBW, wgt\_b, tKvŋv-tvŋv-Kveŋ M`vm | G wZbiUi gta` Kveŋ-WwB-A. vBWB evqŋŪj meŋPtq teŋk evx cvt`Q | AZGe mnŋRB Abŋgq th, evqŋŪj Kveŋ-WwB-A. vBtWi cwiŋvY wqšŋYi gta` ivLvi Rb` mnR Dcvq tei Kiv cŋqvRb | Gtŋŋt etbi fūgKvB meŋaK |

GQovovl MvQ t\_žK cŹw b cŹz cwi gvtY Rj xq ev®c evqgŲtj űgtk hvt"Q| cŹ^tbi gva žg GKuI eo MvQ Mi žgi w žb cŹq 1816 űj Uvi (400 M'vj b) chšlcmb evt®c cwi YZ Ki žZ cvi | dtj , evqžK kxZj i vLžZ, wtkl Kti Mi žgi w žb, MvtQi FugKv AZžbxq|



Rxe%wPŲi msi žžYi gva žg eb mKj Dw™c I cŲYx cRwzi tetP \_vKvi tŲžŲ mnvqK FugKv cij b Ki žQ|

**Ablyj b (Activity)** t eb Kxfvte evqgŲj žK kxZj i vL Zv wbtRi fvlvq ewštq űj Lly|

**eb Rxe%wPŲi msi žžK**

cŲexi mKj RxeB ci ŲŲi i lci Kgtmk wbfŲkxj | dtj cŲYx I Dw™c RMžzi w žK ZvKvtj wēšqi mvt\_ t Lv hvq th, Gt'i GtKi cŲqvRžb Ažb'i mŲo ntqžQ| D`vniY`žfc ejv hvq, nwiY bv \_vKžj mŲiežbi itqj telžj UvBMvi tetP \_vKžZ cvi žZv bv| Avevi mŲieeb bv \_vKžj evN ev nwiY wKŲyB Aw`Zj \_vKžZv bv| Abjžc fvtē wewfbetcvKvgyKo bv \_vKžj AžbK cml tetP \_vKžZ cvi žZv bv| mživs cŲextZ Aw`Zkxj cŲZ`K Dw™c I cŲYx cRwzi tetP Ges űžK \_vKvi RbMz AnaKvi I cŲqvRb itqžQ| Avevi G Dw™c I cŲYx cRwz \_žjv cŲ`Ų Ges ctivŲ|fvte gvbžl i Kj vžYB wbtqmwRZ itqžQ| eb mKj Dw™c I cŲYx cRwzi tetP \_vKvi tŲžŲ AZ`šl mnvqK FugKv cij b Kti \_vžK|



K- mŲiežbi tKI ovMvQ I eibi

L- my i etbi i P T v nwi Y

i P T 12 (K, L) t my i etbi t K l or M v Q, evbi I nwi Y R x e % i P T i A w e t Q Ask  
**i P E w e t b v t b e t b i c w i e**

eb i P E w e t b v t b i R b  
e i P T c y  
c w i t e k |

g v b y K v R K i t Z K i t Z G K m g q g v b i m K f v t e A e m b a n t q c t o | g v b y i G A e m v t K i v i  
R b b v b v c K v i t l j v a j v, c t Z t h w M Z v, a g Y, e b t f v R b B Z i w A v t q v R b K i v i c t q v R b n t q  
c t o | D c t i v i P E w e t b v t b i R b e t b i Q v q t e w o Z c w i t e k, w b g e v a y b b x, e i i v m R,  
e t b v d z, e b c w y c f w Z A v K l P x q D r K o . D c r v b | K v t R B e b i P E w e t b v t b i R b e i P T c y  
c t K w Z K c w i t e k |



i P T 13 t e t b v d z i P E w e t b v t b i A b Z g D r m





**mvi gg** gvbly ebiĀj e`e`rcbri gva`tg Rj evqy`wZkxj i vLŕZ ev cwi eZ<sup>Œ</sup> NUŕZ cvŕi | cŕYxKž tetP\_vKvi cāvb Dcr`vb Aw †Rb ũbqwgZ mieivn Kŕi Pŕj †Q eb | GQvorl eb kā l cwb `ŕY tiŕta Ges gwŕi DePZv, fMf<sup>Œ</sup> cwb i `li ep<sup>x</sup>ŕZ mnvqZv Kŕi | eb gwŕiŕq l fŕgaŕm tiva Kŕi Ges So l Rŕjv`Qŕmi ZieZv nŕm Kŕi | evqgŪŕj i Aw †Rb l Kve<sup>Œ</sup>-WŕB-A· vBŕWi fvi mvg` Z\_v cwi tek msi ŕŕŕY AZ`sl , iazc<sup>Œ</sup>ŕŕgKv cŕj b Kŕi | etbi MvQ evZŕm tŕm teovŕv QvB, ayj KYv, ti Yyl ũel v<sup>3</sup> i ũmvqũbK Mŕŕmi AŕbKLũb tkŕY Kŕi cwi tekŕK ũei x i vL | evqgŪŕj i DòZv ep<sup>x</sup>i Rb` `vqx ũefbeaiŕbi Mŕm, thgb- Kve<sup>Œ</sup>-WŕB-A· vBW, ũgŕ\_b, tKŕiv-tŕŕiv-Kve<sup>Œ</sup> cŕŕZ ũbqšŕYi gva`tg evqgŪŕj kxZj i vL | eb Rie<sup>Œ</sup>ŕPŕ` msi ŕŕŕYi gva`tg mKj Dŕ<sup>Œ</sup> l cŕYx cŕŕwZi tetP\_vKvi tŕŕŕŕ mnvqK fŕgKv cŕj b Kŕi | etbi QŕqŕteŕZ cwi tek, ũbg<sup>Œ</sup> evqyb`b`x, eŕŕi ũR, eŕbdž, eb`cŕYx BZ`ŕŕ ŕPĒŕetŕv`ŕbi Rb` `ewŕŕ`c<sup>Œ</sup>ŕŕKŕZK cwi tek |

**cŕŕVŕĒi gj`vqb 1.3**

**mŕK DĒŕi i cŕŕk ũK ŕPŕ (✓) ũ b |**

- 1) ebiĀj e`e`rcbri gva`tg gvbly Kx Ki ŕZ cvŕi?
  - K) fŕcŕŕZi cwi eZ<sup>Œ</sup>
  - L) b`b`xi cwi eZ<sup>Œ</sup>
  - M) Rj evqy`wZkxj Zv ev cwi eZ<sup>Œ</sup>
  - N) Rj evqy` cwi eZ<sup>Œ</sup>
  
- 2) etbi MvQcŕj v evqŕZ Aw †Rb tQto Kŕŕmi fvi mvg` i ŕŕv Kŕi?
  - K) cwi tetŕki
  - L) evqy` Dcr`vŕbi
  - M) cŕŕLi ũbi v c` Aveŕ`ŕj i
  - N) cŕŕKŕZK `ŕhŕŕMi
  
- 3) eb Kŕfŕte ep<sup>Œ</sup>cŕZ NUŕZ mnŕŕŕ` Kŕi?
  - K) etbi MvQ cŕŕ`ŕŕbi gva`tg Rj xq evŕ<sup>Œ</sup>ci cwi gvY ep<sup>x</sup> Kivi dtj
  - L) etbi MvQ Rj xq ev<sup>Œ</sup>c AvKI ŕŕYi gva`tg
  - M) etbi MvQ Rj evqyl evqy` MŕZteM ũbqšŕY Kivi dtj
  - N) etbi MvQ Avŕj vKmsŕkŕY Kivi dtj

eb l etbi , i ži

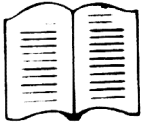
**e'venwiK**

**cW 1.4 evsj v`tki gvbiP`T etbi Ae`vb**



**G Ablyj b tk`I Avcib -**

- evsj v`tki gvbiP`T GtK ZvtZ nefbrai tbi etbi Ae`vb wPwYz Ki tZ cri t eb|



**c`mivK Z\_**

evsj v`tk Pri ai tbi eb i tqtQ| thgb- cwnno eb, g`vb tM`f eb, mgZj figi eb I M`gxY eb| P`EM`g, K. evRvi, i v`zvgnU, LvMoiQwo, ev`ievb I wmtj U nefv`Mi nefbrai Rj vq cwnno eb t`Lv hvq| Ljybv, ev tMiniU, mivZ`xiv I K. evRvi tRjvi P`Kwivqg g`vb tM`f eb Aew`Z| MvRxcj, Uv`vBj, gqgbwmsn, w`bvRcj I iscj tRjvi kij eb wbtqB mgZj figi eb| evsj v`tki th tKv tbr AA t j B emZewo I Gi Av t kci t k M`gxY eb t`Lv hvq|



wP`T 15 t evsj v`tki gvbiP`T nefbrai tbi etbi (M`gxY eb ev t`) Ae`vb

**DcKiY**

tUims tccvi , tcwYj , i vev (Eraser), t`j , tRgm uKε BZ`w` |

**KuRi avc**

- Avcbri tKım@Btq cŦĒ evsj vt`tki eb Gj vKv ubt`kZ gvbwPŦuU fitj vfvte chēeŷY Kiŷ|
- Gevi tKım@Btqi gvbwPŦi Dci tRgm uKε w`tq tUims tccvi uU fitj vfvte AvUKvb|
- tcwYj w`tq gvbwPŦuU tUims tccvŷi Avkŷ|
- gvbwPŦi wefbaetRjvi mxgvbv ubt`R Kiab Ges wefbaeiŷbi eb Gj vKv uPwYz Kiab| Gtŷŷi wefbaeiŷbi eb Gj vKv Avj v`vfvte kYv<sup>3</sup> Kivi jŷŷi tcwYj w`tq Avj v`v ubt`RK (Legend) Avkŷ|
- gvbwPŦuU uPwYz (Leveling) Kiab|
- Gevi e`enwi K LvZvi mŷ½ gvbwPŦuU mshŷ Kiab I cŷiv cŷuquu avivewKfvte LvZvq wj Lŷ I uDUiŷK t`uLŷŷi vŷŷi ubb|





### cɪnɪwɔ eṭbi eṭṭ

cɪnɪwɔ eṭbi cāvb eṭṭ-  
tm\_b, Mvgvi, kxj KoB,  
Pvcwɔj k, Pɔ́úv, tgnMvb,  
K`g, MRḐ, Rviy  
BZ`w` |

cɪnɪwɔ eṭbi cāvb cāvb eṭṭ nṭjv- tm\_b, Mvgvi, kxj KoB, Pvcwɔj k, Pɔ́úv, tgnMvb, K`g, MRḐ, Rviy BZ`w` | Gme MvQ Qvovl cɪnɪwɔ eṭbi Ab`Zg cāvb mɔ́ú` nṭjv etk, teZ Ges bvbv aĩṭbi j Zvṭbv Dv`m`c | Dṭj m\_LZ MvQ Qvovl eũ i Kg MvQ MvQiv wewṭṭBfite cɪnɪwɔ Gj vKvq Qvovtq wQvUṭq iṭqṭQ | Pv evMvb\_tjvi Ae`vbl cɪnɪwɔ Gj vKvq | wṭṭjU wefvṭMi wewfbre ṭRj vṭZB wmsnfvM Pv evMvb Aew`Z | eZḡvṭb cɪnɪwɔ Gj vKvq AṭbK\_tjv ivevi evMvb mṭṭ Kiv nṭqṭQ |

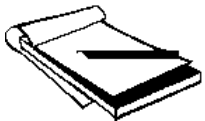


wṭṭ 16 t cɪnṭoi Xvṭj Pv evMvb

### eb`cṶx

cɪnɪwɔ eṭb iṭqṭQ wewfbre  
aiṭbi `b`cvqx cṶx,  
mixmç, cɪwL Ges  
KxUcZ½ |

cɪnɪwɔ eṭb eṭṭ, etk, teZ I j Zv Qvovl iṭqṭQ wewfbreaiṭbi `b`cvqx cṶx, mixmç, cɪwL Ges KxUcZ½ | `b`cvqx cṶxi gṭa` nṭwZ, wewfbre cṶwzi evN, evbi, Djḡ, fɔjḡ, nwiY BZ`w`B cāvb | mixmçci gṭa` cāvb nṭjv wewfbreaiṭbi mvc, wMi wMiU BZ`w` | wMi wMiU i gṭa` Avevi cāvb nṭjv tmvbjx I Kvṭjv\_B | cɪnɪwɔ eṭbi cɪwLi gṭa` weL`vZ nṭjv ebṭḡviM, gqbv, g\_ḡv, figivR, wewfbreaiṭbi UbUvb, bvPḡb, KvṭVvKiv, aṭbk BZ`w` | GQvovl iṭqṭQ AmsL` cṶwzi cɪwL | KYḡjx cṶwve`y` cḶí `vctbi dtj mṭ nṭ` Drcw`Z gvQ iv½vgwU, ev` i evb I LvMvovQvovl ṭRj vi gvṭQi Ab`Zg cāvb Drṭm cwi YZ nṭqṭQ |



**Abḡj b (Activity) t** cɪnɪwɔ eṭbi Dv`m`c I cṶxi GKwU Zvṭj Kv `Zwi Kiab |

### cɪnɪwɔ eṭb eZḡvṭb ebvqb

cɪnɪwɔ eṭb cāZ eQi cṶq  
12,145.75 tn±i RvḡṭZ  
gj`evb I `ḡ eaḶkxj  
MvQ j vMṭbv nṭ`Q |

eZḡvṭb cɪnɪwɔ eṭb gj`evb Ges `ḡ eaḶkxj MvQ j vMṭbvri cwi Kí bv ev`éqvbraxb iṭqṭQ | G chṶl cṶq 1.04 j ṭṭ tn±i cɪnɪwɔ eb Gj vKvq gj`evb Ges `ḡ eaḶkxj MvQ j vMṭbv nṭqṭQ | eZḡvṭb cāZ eQi cṶq 12,145.75 tn±i ebvĀṭj gj`evb Ges `ḡ eaḶkxj MvQ j vMṭbv nṭ`Q | Qq eQi Pṭṭi `ḡ eaḶkxj MvQmḡḡ gj`Z Rvj wvb Kiv mi eivṭni Rb` j vMṭbv nṭq\_ṭK | cṶvṶṶi, h\_vṭḡḡ 12, 18 I 40 eQi Pṭṭi MvQmḡḡ peeling logs, Lḡ Ges

saw logs Drcv`ṭbi j`ṭṭ" j vMṭbv nṭq `ṭK| GQovl ṭKQymKQycvnmw AĀṭj ivevi Drcv`ṭbi j`ṭṭ" ivevi evMṭbl mṭṭ Kiv nṭ"Q|

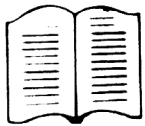


ṭPĪ 17 t cvnmw eṭb ebrqb

**cvnmw eṭbi ṭiaṭ;**

cvnmw eṭbi evk, teZ, Kvôm=úṭ`i Ici ṭbFṭ Kṭi Mṭo IṭVṭQ ṭewfba aiṭbi ṭkí Kvi Lvb| ZvB RvZxq A\_ṭmZṭZ cvnmw eṭbi ṭiaṭ; Acvi mṭg|

evsjvṭ`ṭki A\_ṭmZṭZ cvnmw eṭbi ṭiaṭ; Acvi mṭg| ṭvbxq cvnmw AĀṭj evṭki AdzŚl Drṭmi K\_v ṭetePbv Kṭi ivṭvgmU ṭRjvi P`ṭNvbvq KYṭjx KvMṭRi Kṭi ṭmCZ nṭqṭQ| Abj/cfṭe, P`ṭNvbv ṭiqb ṭgṭ m& ṭmCZ nṭqṭQ cvnmw MvQcij vṭK Kvṭvgvj ṭṭṭṭe e`enivṭi i j`ṭṭ" GKBfṭe ṭṭṭṭ U tccvi I cví ṭgṭ ṭmCZ nṭqṭQ ṭvbxq evk, teZ, Nvm BZ`w` Kvṭvgvj ṭṭṭṭe e`enivṭi i j`ṭṭ"| PĀMṭg ebṭkí Dbṭṭb Kṭcṭikṭbi Kvi Lvb ṭmCZ nṭqṭQ cvnmw eb ṭ\_ṭK cṭṭ Kvôm=úṭ`i mṭ`enivṭi i j`ṭṭ"| GQovl mviṭ`ṭki hveZxq Kvômṭṭṭ Avmeieṭṭi GK ṭekij AskB ṭṭṭṭ nq cvnmw eb ṭ\_ṭK cṭṭ Kvôm=ú` ṭ\_ṭK| ṭij j vBṭb e`eüZ ṭúcvṭi cṭṭb mieivn Avṭm cvnmw eb ṭ\_ṭK| GQovl epĒi ṭṭṭṭ U AĀṭj Mṭo IṭVṭQ ṭQvU ṭQvU evk I teZ ṭkí Kvi Lvb| chṭṭb Kṭcvṭi kb ṭvcb KṭiṭQ Uṭi ÷ ṭúU hv ṭiṭṭ ṭe`ṭkK gṭi ARṭ Kiv mṭe nṭ"Q|



**mvi gg** PĀMṭg, K. evRvi, ev`ieib, ivṭvgmU, LvMoiQmo Ges epĒi ṭṭṭṭ U AĀṭj i cveZ` Gj vKvi cṭṭKwZK ebṭKB cvnmw eb ṭṭṭṭe ṭPṭyZ Kiv nq| cvnmw eṭb eQṭi Mṭo 250 ṭm. ṭg. epṭcvZ nṭq `ṭK Ges GLvbKvi DòZv cṭṭ 34<sup>0</sup> ṭmj ṭmqm| cvnmw eṭb eZṭvṭb cṭṭ eQi cṭṭ 12,145.75 ṭn±i RṭṭṭZ gṭ`evb Ges `ṭ eaṭkij MvQ j vMṭbv nṭ"Q| GLvbKvi cṭṭb cṭṭb eṭṭ nṭjv– ṭm\_b, Mṭgvi, kṭj KoB, Pvcṭj k, Pṭúv, ṭgnMṭb, K`g, MRṭ, Rvi ṭj BZ`w`| cvnmw eṭb iṭqṭQ ṭewfbaaiṭbi ṭb`cvqx cṭṭx, miṭmṭ, cvm Ges KxUcZṭ| eṭbi evk, teZ, Kvôm=úṭ`i Ici ṭbFṭ Kṭi Mṭo IṭVṭQ ṭewfbaaiṭbi ṭkí Kvi Lvb| ZvB RvZxq A\_ṭmZṭZ cvnmw eṭbi ṭiaṭ; Acvi mṭg|



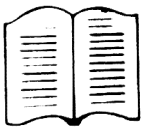
### cw 2.2 g'vbtMöf eb



#### G cw tk̄i Avcib –

- g'vbtMöf eb I Gi`enkó`i weeiY w`tZ cviṭeb|
- g'vbtMöf eṭbi we`k̄Z nek`fiṭe eYṬv KiṭZ cviṭeb|
- my`ieṭbi eṭi Av`Qv`b Ges eZḡvb Ae`v wj LtZ cviṭeb|
- my`ieṭbi t`tk̄ cōB m̄ú`i eYṬv w`tZ cviṭeb|
- eisj w`tk̄i Ab`vb` DcKj xq eb m̄ú`U ej tZ cviṭeb|
- g'vbtMöf eṭbi , iazje`vL`v KiṭZ cviṭeb|

#### g'vbtMöf eb I Gi`enkó`



g'vbtMöf (Mangrove) k̄aiU cZḡR g'vb, (Mangue) Ges tMöf (Grove) G`w̄ kt̄ai wj t̄b`Zwi nt̄qtQ| Mangue A`GKiu`ZŠ;MvQ; Avi Grove A`vKv ev Sro| A`th eṭb GKiu`ZŠ; cRmZi MvQ GKm½ Svo teta Rṭb| G Mangrove-ṭKB eisj vq Mivb ev tm̄ZR eb etj | mḡDcKj thLvṭb tRvqi fivUv eq, th mKj w̄PzI mgZj RvqMv ev Pti mḡi j eY I b`xi w̄no Dfq cmbi tm̄Z tXD tLṭj hvq, thLvKvi ḡmU K`ḡv³ I mgZj, thme Lw̄ ev tgvbvq mḡZi t̄zi ḡZv I evZv̄mi cōej` Kg Ges thLvKvi Rj evqyDō I Av`mLvṭbB g'vbtMöf Svo teta Rṭb|

tRvqti i mgq w̄bqgZ e`eavṭb g'vbtMöf eṭbi AwaKvsk GjvKv t̄jv̄v cmbtZ w̄bgw̄4Z `v̄K| Mv̄Qi exR Mv̄Q `vKṭZB AsKv̄Z nq| teiki fivM Mv̄Qi w̄kKo miy n̄tq ḡmU Dcṭi DṭV Av̄tm| G, t̄j v̄K k̄jmgj- etj |

tRvqti i mgq w̄bqgZ e`eavṭb w̄KQzmḡqi Rb` g'vbtMöf ev t̄jv̄vRṭj i eṭbi AwaKvsk GjvKv j eYv³ cmbtZ w̄bgw̄4Z `v̄K| ZLb eṭbi Mv̄Qciv, t̄jv G j eYv³ cmb w̄tq w̄m³ nq| eb nq wetašZ| g'vbtMöf eb, wetaKl Kti my`ieṭbi R̄jo it̄qtQ AmsL` b`x, b̄jv, Lvj, fviw̄b (ḡ b`xi ga`Kvi m̄sthvM`j), Lw̄ ev tgvbv BZ`w̄ | my`ieṭbi KtqKiu c̄avb b`x n̄tjv– nwi YNvUv, ci i, ḡj Ā I ivqḡj | G eṭbi Mv̄Qciv i`enkó` Ab`vb` eb t`tk̄ w̄KQv w̄fb̄eaiṭbi | Mv̄Q, t̄jv j eYv³ cmbtZ R̄xebaviY KiṭZ cviṭi | Mv̄Qi exR Mv̄Q `vKṭZB AsKv̄Z nq| G aiṭbi AsKv̄Z`MḡṭK RivqR AsKv̄Z`Mḡ etj | GQvov g'vbtMöf eb GjvKvi teiki fivM Mv̄Qi w̄kKo mīæntq ḡmU Dcṭi DṭV Av̄tm| G, t̄j v̄K k̄jmgj-, k̄jv ev w̄DṭḡṭUv̄dvi (Pneumatophore) etj | c̄jv my`ieṭbi ḡmU K`ḡv³ Ges k̄jvq fiv| G eṭb Ggb AṭbK`Mḡ GjvKv iṭqtQ thLvṭb GLbl tKv̄bv ḡv̄j̄ i c`w̄Pý cto w̄b| GLvṭb tKv̄bv `v̄q̄ em̄m̄`v t̄bB| my`ieṭbi GjvKvq eQṭi 190-254 tm. w̄g. eṭv̄civ n̄tq `v̄K| G eb t`tk̄i KvV Ges R̄jv w̄bi GKK ep̄Ēg Drm|



w̄P̄ 18 t g'vbtMöf eṭbi Mv̄Qi c̄avb `enkó n̄tjv Gi k̄jmgj-

**g'vbtMÖf eṭbi we-ḥZ**

myieḅ weṭkṭi meḅpr  
g'vbtMÖf eb hv eṣjvṭṭki  
`wYcwoḡvAj Ges fviṭzi  
cwoḡeṭzi Mzv b`xi  
tḡvnbvq cōq 10 j ḡ tḡi  
GjvKv Rṭo we-ḥZ

eṣjvṭṭki `wYvAj DcKj xq GjvKv Ges K· eṣvṭi PtKwi qvq g'vbtMÖf eb ṭLṭZ  
cvlqv hvq| myieḅ weṭkṭi meḅpr GKK Drcvḅkij g'vbtMÖf eb hv eṣjvṭṭki  
`wYcwoḡvAj Ges fviṭzi cwoḡeṭzi Mzv b`xi tḡvnbvq cōq 10 j ḡ tḡi GjvKv Rṭo  
we-ḥZ| G eṭbi cōq 62% eṣjvṭṭki evṭMinu, Ljyv I mvZḡxiv tRjvq Ges emK Ask  
cwoḡeṭzi 24 ciMbv tRjvq Aew-ḥZ| ṭfṣṭMwv Kfṭe myieṭbi Aeṭv 21<sup>0</sup>-30<sup>0</sup> ṭṭK  
22<sup>0</sup>-30<sup>0</sup> DĒi `wNgvsk chṢ Ges 89<sup>0</sup> ṭṭK 90<sup>0</sup> ceḂAḡṭṭki ḡṭa`| eṣjvṭṭki myieḅ  
cṭeḂmvZḡxiv ṭṭK cwoḡeṭ evṭMinu chṢ we-ḥZ| ḡṭṭki myieṭbi AvqZb cōq 6,221  
eMḡK.ḡg. Ges we-ḥZ. cōq 5.77 j ḡ tḡi hv ḡṭa` ṭj fivM 4.16 j ḡ tḡi Ges emK Ask  
Rj fivM hv tQvU tQvU Lwv, bvjv, Lvj ḅviv Rṭj i ḡZv teḡZ| ṭṭnZṭQvU Lwv, bvjv, Lvj  
eo b`x, ṭjvi mṭ½ mshṭ ZvB G eṭbi cōZ Kiv AskB ṭbṢKv w ṭq hvZvqvZ Kiv mḂe|



wṖṭ 19 t myieḅ weṭkṭi meṭPtq eo g'vbtMÖf eb

**eṭbi weṭfbaw`**

myieṭb cōq 330 cRwzi  
jeYvṣyDwṭc, 120 cRwzi  
gvQ, 8 cRwzi DfPi cōYx,  
50 cRwzi mixmḅ, 270  
cRwzi cwl, 42 cRwzi  
ṭb`civx cōYx Ges 60  
cRwzi wṖṭo I  
KivṣovRvZiq cōYx iṭqṭQ|

myieḅ weṭfbaw` K w ṭq mgṭ| hv I GwU cōq cṭBk eQi cṭeḂcōKwZK mḂu` wṭṭṭe ṭKZ.  
nṭqṭQj, wṢ weAvbmḂZfṭe Gi e`e`vcbv AvicṭnṭqṭQ gvṭ 120 eQi cṭeḂ RxeḂwṖṭi  
w`K w ṭq myieḅ AZ`ṣṭ mgṭ| G eṭbB weḅḅeL`vZ evN, iṭqj teḅj UvBMvi eim Kṭi| G  
eṭb cōq 330 cRwzi jeYvṣyDwṭc iṭqṭQ| ZvQvov iṭqṭQ 120 cRwzi gvQ, 8 cRwzi  
DfPi cōYx, 50 cRwzi mixmḅ, 270 cRwzi cwl, 42 cRwzi ṭb`civx cōYx Ges 60  
cRwzi wṖṭo I KivṣovRvZiq cōYx| myieṭbi AvKlṭvq eb`cōYxi ḡṭa` iṭqj teḅj  
UvBMvi, wṖṭv nviY, eb`iKi, evbi, Kvgi, KvṭgvU (nvṭi), Wjwdb, ARMi I Ab`vb` mvc,  
bvbv cRwzi cwl, ṭḡḡḡḡ I Ab`vb` KivcZ½ Ges bvbv cRwzi gvQ DṭjLṭṭvM`| myieṭbi  
cḂvb eḡṭ nṭṭQ myṭi | ZvQvov Ab`vb` Kivṭ eṭḡṭi ḡṭa` iṭqṭQ ṭMlqv, Mivb, evBb, Kivṣov,  
cii, ayj, Avḡj, ṭKl ov BZ`w`| AKvōj Dwṭc`i ḡṭa` kb, ṭṭv, wṖj jZv, ṭKqv,  
ṭMj cvZv I ṭnZvj cḂvb| ṭMj cvZv Nṭi i QvDwb, teov BZ`w` i KvṭR e`eüZ nq| myṭi,  
cii cṭwZ. ṭṭK DbḂḂḂḂ Kiv cvlqv hvq hv ṭṭK AZ`ṣṭ ḡReṭ Avmeṭcṭ `Zwi nq|

GQvovl myieḅ Rjy wḅ KivVi GK weivU Drm| myieṭbi eṭṭ cḅž msLiq tgSPvK t`Lv  
hivq Ges G t\_ṭK cḅž cui givY gayAvniY Kiv nq| gayl Kiv msMh Kṭi eū tj vK RmeKv  
wbevḥ Kṭi |



wPṭ 20 t myieṭbi Rxe%wPṭ

**eṭṭmṭú` Ges Av`Qv` ṭbi cwiḡvY**

eZḡvṭb myietb 10  
tm.ḡ. Gi Awak e`vṭmi  
1,06,37,213 NbuḡUvi  
KvVmgx MvQ iṭqṭQ|

GK mḡxḡvḡ Rvbn tMṭQ th, eZḡvṭb myietb 10 tm. ḡ.-Gi Awak e`vṭmi 1,06,37,213 NbuḡUvi KvVmgx MvQ iṭqṭQ| wKŠ` KvṭVi G cwiḡvY 1960 mṭj hv uQj eZḡvṭb Zvi ḡvṭ kZKiv 52 fṭM uṭK AvṭQ| i ayZvB bq, GKB mḡxḡvḡ AvI ṭ`Lv tMṭQ th, myietb ṭ`ṭK Avnwi Z KvṭVi ṭ`YMZ ḡvbl AvṭMi Zḡbvq AṭbK nwm tctqṭQ| A\_ṭ myietbi eṭṭmṭú` ṭ`ḡ aṭṭmi w`ṭK amez nṭ`Q| Awej ṭ`hṭ` myietbi eṭṭmṭú` ṭK aṭṭmi nvZ ṭ`ṭK iḡvi e`e`v Kiv bn nq, Zvntj ḡḡvṭḡ Gi Drcv`b thḡb Kṭḡ hṭe, ṭZḡub cḡB mṭúṭ` i ṭ`YMZ ḡvbl nwm cṭe|



wPṭ 21 t ḡ`vbṭMḡF eṭbi tMl qv eṭṭ

myietbi 65% GjvKv  
70% eṭṭ, 30% GjvKv  
30-70% eṭṭ Ges 5%  
GjvKv 30% Gi Kg eṭṭ  
ḡvṭ Av`Qv` Z|

mṭúṭZK AvI GK mḡxḡvḡ Rvbn tMṭQ th, myietbi 65% GjvKv 70% eṭṭ ḡvṭ Av`Qv` Z; 30% GjvKv 30-70% eṭṭ ḡvṭ Av`Qv` Z Ges 5% GjvKv 30% Gi Kg eṭṭ ḡvṭ Av`Qv` Z| myietbṭK iḡvi Ges eṭṭiṭRi ṭ`YMZ ḡvbl AḡḡvṭvLvi Rb` GLvb ṭ`ṭK mṭúṭ` AvniṭYi ṭḡṭṭ AZ`šmvearbZv Aej ṭ`b KiṭZ nṭe hvṭZ eṭṭ GjvKvi cwiḡvY Kṭḡ bn hvq|

**Ab`ib` DcKj xq eb**

K· evRvṭi i ṭUKbvṭ ṭ`ṭK  
emi kvj Ges cUqvLvj xi  
DcKj xq AAj chS|  
ḡ`vbṭMḡF eṭbi MvQ, h\_v-  
ṭKl ov, Kvkvov, evBb  
BZ`w` j vMṭbv nṭ`Q|

K· evRvṭi ṭRjvi PṭKvṭqv `vbḡ ḡ`vbṭMḡF eb iṭqṭQ| Gḡvovl K· evRvṭi i ṭUKbvṭ ṭ`ṭK i iæ Kṭi emi kvj Ges cUqvLvj xi ṭRjvi DcKj xq AAṭji 1.27 j ḡḡ tnṭi GjvKv Rṭḡ DcKj xq eb `Zwi i j ṭḡḡ` eṭṭ tivcy KgRvṂl BṭZvgṭa` i iæ nṭqṭQ| Gme AAṭj l ḡ`vbṭMḡF eṭbi MvQ, h\_v- ṭKl ov, Kvkvov, evBb BZ`w` j vMṭbv nṭ`Q| G DcKj xq eb GKw`ṭK thḡb SoRṭj v`Qvṭmi ZvṂe ṭ`ṭK GjvKveṭṭK AṭbKvṭk iḡvi Kiṭe ṭZḡub Ab`w`ṭK Rjv wḡ Ges ḡṂ `Zwi i Kv mieivn Kiṭe| eZḡvṭb cḡZ eQi 2.83 nvRvi tnṭi DcKj xq GjvKv ebrqb Kiv nṭ`Q|

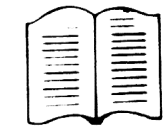
myieṭbi ṡiaṡ; Acwimxg | G eb t\_ṭK cūB KvV, tMj cvZv, gay tgvv, gvQ cṫwZi I ci eū tj vK RweKv iberṫ Kṫi |

**g'vbtMōf eṭbi ṡiaṡ;**

g'vbtMōf eb wntmte myieṭ GKKfite ersj vṫ ṫki GKwU Agj- mṫú` | G eb t\_ṭK cūB mṫú` weiea Ges eūgṫx | G eb GKvati AvmevecĪ ṡwi Ges Rjv vnb KvV mieivn KiṫQ | AcivṫK G eṭbi weL'vZ tMj cvZv Nṫoi QvDvbi DcKiY wntmte e'eūZ nṫ"Q | G eb t\_ṭK wecy cwi gvY gayGes tgvv Avni Y Kiv nṫq \_vṫK | ZvQvov grm", wPsw Ges kvgṫmṫú` I myieṭ AZ ṡimṫx | myieṭ Ges Acivci DcKj xq g'vbtMōf eb AwPj fite t\_ṫK eb'v, So Ges Rṫjv"Qvṫmi cṫŪZv t\_ṭK iṫv Kṫi AvmṫQ | eZṫvṫb myieṭ t`Lvi Rb" t\_ṫkweṫ ṫki eū chṫK AvmṫQ | mṫhMmṫeav ewx Ges mṫze'e vcbvq GLvṫb chṫb wKí Mṫo ZṫZ cwiṫj G t\_ṭK mi Kvi cṫZ `eṫ wKk g-ṫ ARṫ KiṫZ cwiṫe |



**Abṫj b (Activity) t g'vbtMōf eṭbi `ewkó'vej x I mṫú` mgr wj wce x Ki ab |**



**mvigg** cZṫR Mangue Ges Grove wṫtj Mangrove kṫāi DrcwĒ | Gi A\_ṫh eṭb GKwU ṡZṡ;cṫwZi MvQ Svo teta Rṫbṫ | G tj vbr Rṫj i eṭbi cāvb `ewkó" nṫ"Q GLvṫb wKQweṫkI aiṫbi MvQ Rṫbṫ hv Ab'vb" ebvĀṫj t`Lv hvq br | myieṭ weṫkṫi meepr g'vbtMōf eb hv ersj vṫ ṫki `wṫYcwōgvĀj Ges fviṫZi cūōgeṫzi Mṫv b`xi tgvvbrq cūq 10 j ṫ tn±i GjvKv Rṫo we`Z | myieṭb cūq 330 cṫwZi g'vbtMōf Dvṫc, 120 cṫwZi gvQ, 8 cṫwZi DfPi cūYx, 50 cṫwZi mixmṫ, 270 cṫwZi cūL, 42 cṫwZi `b'cvqx cūYx Ges 60 cṫwZi wPsw I KvṫiovRvZxq cūYx iṫqṫQ | GLvṫbKvi cāvb Dvṫc nṫj v- mywi, tMI qv, Mivb, evBb, Kvṫiov, ci i, ayj, Avgy, tKI ov, tMj cvZv BZ`w` | myieṭb weṫteL'vZ iṫqj teṫj UvBMvi eim Kṫi | myieṭbi 65% GjvKv 70% eṫ, 30% GjvKv 30-70% eṫ Ges 5% GjvKv 30% Gi Kg eṫ ṫv iv Av"Qw`Z | K. evRṫi i tUKbv d t\_ṫK ewi kvj Ges cUqvLij xi DcKj xq AĀṫj g'vbtMōf eṭbi MvQ, h\_v- tKI ov, Kvṫiov, evBb BZ`w` j vMṫv nṫ"Q | myieṭbi ṡiaṡ; Acwimxg | G eb t\_ṭK cūB KvV, tMj cvZv, gay tgvv, gvQ, wPsw, kvgṫ cṫwZi I ci eū tj vK RweKv iberṫ Kṫi |



**cṭVvĒi gj-ṭqb 2.2**

**mṭK DĒṭi i cṭk ṭK ṭPý (✓) ṭb |**

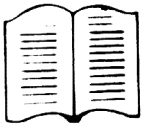
- 1/ ceṭṭK cṭōṭg mý i eṭbi we ṭZ. KZUK2
  - K) ei ṭbr ṭṭK evṭMi nvU
  - L) mvZṭṭxi v ṭṭK evṭMi nvU
  - M) Lṭybr ṭṭK cṭṭqvLṭj x
  - N) mvZṭṭxi v ṭṭK ewi kvj
  
- 2/ DcKj xq ebeṭṭṭi AbṭZg ṭewkóṭ Kx?
  - K) MṭṭQi ṭkKo Lṭj ṭṭ
  - L) MṭṭQi cṭZv Lṭj Kg ṭṭK
  - M) MṭṭQi evKj cṭZj v nq
  - N) MṭṭQ j eYv<sup>3</sup> cṭṭṭZ Rṭebavi Y Ki ṭZ cṭṭi
  
- 3/ mý i eṭbi cṭṭvb eṭṭi ṭKvbṭU?
  - K) Mi vb
  - L) mý wi
  - M) ṭMI qv
  - N) ṭKl ov
  
- 4/ ṭKvbṭeṭb i ṭqj teṭj UvBMvi cṭl qv hvq?
  - K) mgZj fṭṭṭi eṭb
  - L) cṭvṭmo eṭb
  - M) mý i eṭb
  - N) DcKj xq eṭb

### cW 2.3 mgZj fvgi eb



#### G cW tkłl Avrb –

- mgZj fvgi eþbi ve<sup>-</sup>łZ Dłj Ł KiłZ cvi teþ|
- mgZj fvgi eb t<sup>-</sup>łK cłB ełł m<sup>-</sup>úłKłj ŁłZ cvi teþ|
- G eþbi eZłvb Ae<sup>-</sup>v Avłj vPbv KiłZ cvi teþ|
- mgZj fvgi eþbi m<sup>-</sup>úł<sup>-</sup>i cwi gvY ej łZ cvi teþ|
- mgZj fvgi eþbi i<sup>-</sup>æZ;eYłv KiłZ cvi teþ|



fvl qvj l gaxji i Mo Ges iscj l wbrCy trj vi eb wbtq mgZj fvgi eb MwZ|

#### mgZj fvgi eþbi ve<sup>-</sup>łZ

MvRxcłji i fvl qłtji i Mo; UvłvBj l gqgbwstni gaxji i Mo wbtq mgZj fvgi eþbi tkłłq AAj Ges iscj l wbrCy trj vi wbtq DEivAj MwZ ntqtQ| tgvU 0.49 j łł tn±i AAj Rło G mgZj fvgi eþbi ve<sup>-</sup>łZ| G eb łj vłK AłbłK kuj ebl etj vłKb, Kvi Y G eb łj vłZ cłvbZ kvj MvQB Rłbł vłK| cłKwZfvte Mto lVv G eb Qvovl Avl cłq 14.58 nvRvi tn±i RvgtZ bZły Kłi ebvqb Kiv ntqtQ|

#### mgZj fvgi eþbi AZłZ Ae<sup>-</sup>v

1950 młj cełvsj v miKvi GK Gł±i etj Rvgt vix cłv emZj Kłi mgZj fvgi eþbi młz e<sup>-</sup>vcvri vłqZ; miKvłi i vR<sup>-</sup>vefvłMi Aaxłb b<sup>-</sup>ł Kłib| łk vefvłMi mgq G eþbi ebRm<sup>-</sup>ú<sup>-</sup> DRvo i iæ nq; eþbi Avłkcıłki tjvKRb B<sup>-</sup>QvgtZv MvQ łKłU łbv v i iæ Kivq mgZj fvgi Avakısk eb ełłk<sup>-</sup> ntq cło Ges AłbK Rvgt te<sup>-</sup>Łj ntq cło| ZvQvov vıxvZvi Ae<sup>-</sup>emZ cłi hł<sup>-</sup>Q Ges A<sup>-</sup>afvte ełł wbatłi dtj mgZj fvgi Gme eþbi AeYłvq łłZ młwZ ntqtQ| cieZłZ 1972 młj Gme eb t<sup>-</sup>łK łKvıbv cłKvi ełł wbab m<sup>-</sup>úYłvł x łNvl Yv Kiv ntqtQ|

mgZj fvgi eb ev kuj eb 1950 młj chłceZłb Rvgt vi tkłYi tj vłKi gvıj Kıvıxıv łQj | 1950 młj cełvsj v miKvi GK łGł±i (Act)ł etj Rvgt vix cłv emZj Kłi G eþbi młz e<sup>-</sup>vcvri vłqZ; miKvłi i vR<sup>-</sup>vefvłMi Aaxłb b<sup>-</sup>ł Kłib| łk vefvłMi mgq G eþbi ebRm<sup>-</sup>ú<sup>-</sup> DRvo i iæ nq; eþbi Avłkcıłki tjvKRb B<sup>-</sup>QvgtZv MvQ łKłU łbv v i iæ Kivq mgZj fvgi Avakısk eb ełłk<sup>-</sup> ntq cło Ges AłbK Rvgt te<sup>-</sup>Łj ntq cło| ZvQvov vıxvZvi Ae<sup>-</sup>emZ cłi hł<sup>-</sup>Q Ges A<sup>-</sup>afvte ełł wbatłi dtj mgZj fvgi Gme eþbi AeYłvq łłZ młwZ ntqtQ| cieZłZ 1972 młj Gme eb t<sup>-</sup>łK łKvıbv cłKvi ełł wbab m<sup>-</sup>úYłvł x łNvl Yv Kiv ntqtQ|

#### G eþbi eZłvb Ae<sup>-</sup>v

mgZj fvgi eþb AvsgımbK 32% ełł Av<sup>-</sup>Qv b i łqtQ|

miKvıfvte eZłvıb Gme eb t<sup>-</sup>łK łKvıbv ełł KZł Kiv nq bv| eb vefvł eb Dbłłbı Rb<sup>-</sup> vıxq tjvKRłbı Askı vıłZi vıvıŁZ GłMłđłı<sup>-</sup> ev Kvl ebvqb l DWjU evMıv młpı gıvıg G mg<sup>-</sup>ł te<sup>-</sup>Łj Rvgtı vKQıv miKvłi i Aaxłb AvłłZ młg ntqtQb| G c<sup>-</sup>vłZłZ



¶PÍ 22 t mgZj fúgi eþb eZgúv ebrqb

mdj Zv AvbþZ ntj GLbl AþbK mgm`v i tq tMtQ hv AbwZiej t`mgvavb Kiv c`qRb| G mgm`v, t j vi gta` MhYthwM` t fVM` Lj` Z;` vqwfúÉþZ ubafY, Avw` R msKU, Rvigi AbyfZv, Kwl dmj` Zwi Kivi Rb` c`qRbxq Kwimwi ubt` Rbvi Afve BZ`w` Ab`Zg| G mg` í mgm`v mgvavþbi j t`¶` mi Kvi BþZvgþa` c`qRbxq c` t`¶c Z\_v bmwZgvj v c`qY Kþi t`Qb| GKwU AvšRwZK ms`vi Rixc t` t`K Rvbr hvq th, Gme eþb eZgúvþb AvbgywbK kZKiv 32 fVM e¶| Av`Qr` b i tq t`Q| c`KwZKfite Mto DVvi gva`tg kij ev MRvwi MvþQi cvkvcwvk mvgwRK ebrqbþi gva`tg eZgúvþb Avg, Rvg, Kvúvj, Rvi aj, kvj KoB, Avgj wK, eþniv, BDK`wvj Þvm, AvKvkgwb c`fúZ c`RwZi e¶|I tivcY Kiv nt`Q|



¶PÍ 23 t mgZj fúgtZ Kwlebrqb

**m`úþ` i cwigv**

GLvbKvi e¶|m`úþ` i cwigvY ubYþqi Rb` KLþbv tKvþbv c`Kvi Rixc Pvjvþbv nq wb, ZvB c`KZ.m`úþ` i cwigvY Rvbr hvq bv| Zte Abgyv Kiv ntq` vþK th, mgZj fúgi Gme eþb wecj cwigvY e¶|m`ú` i tq t`Q|

mgZj fúgi Gme eþb wecj cwigvY e¶|m`ú` i tq t`Q|

**mgZj fúgi eþbi , iaþ;**

mgZj fúgi eb t` t`K c`B kij MvQ evsjv t`ki MúgvÁþj Nievmo wbgfYi Ab`Zg c`vrb DcKiY Lw` wntmte e`eüZ ntq` vþK| GQvovl G kij MvQ t` t`K wecj cwigvY Rvj wv cvl qv hvq| G eþb wkvj, mRviþ evNWkv, ebwovj, tewR c`fúZ c`Yx t` Lv hvq| ZvQvov KvK, t` vþj, NnyGes Avi l bvbv c`RwZi cwl t` Lv hvq| GQvovl i tq t`Q wvrfbæiþbi mvc, wMi wMwU, KxUcZ½ BZ`w` |

mgZj fúgi eþbi kvj Kw Lw` wntmte e`eüZ nq|



**mwiggt** MvRxcþi i fvlqtþi Mo; Uv½vBj l gqgbwstni gaxþi i Mo wbtq mgZj fúgi eþbi tK`xq AAj Ges iscj l w`bvRcy AAj wbtq DEivÁj MwZ| 1950 mvtj ce`evsj v mi Kvi GK 0Gt±i (Act)0 eþj Rvíg`vix c`v emvZj Kþi G eþbi mgye`e`vcbvi` wvqZj mi Kvtii ivR`^wefvþMi Aaxþb b` t`Kþib| mgZj fúgi eþb eZgúvþb AvbgywbK 32% e¶| Av`Qr` b i tq t`Q| mgZj fúgi eþbi c`vrb e¶| kij | mgZj fúgi Gme eþb wecj cwigvY e¶|m`ú` i tq t`Q| mgZj fúgi eþbi kvj Kw Lw` wntmte e`eüZ nq| GLvþb eü c`RwZi eb`c`Yx, cwl l KxUcZ½ t` Lv hvq|



**cwṭVvĒi gj-ṯqb 2.3**

**mṯWK DĒṯi i cwṭk ṯWK ṯPý (✓) ṯi b |**

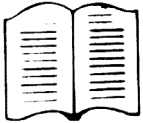
- 1| mgZj fṯgi eṭbi cwi gvY KZ?
  - K) 0.49 j ṯṯ ṯn±i
  - L) 0.59 j ṯṯ ṯn±i
  - M) 0.69 j ṯṯ ṯn±i
  - N) 0.79 j ṯṯ ṯn±i
  
- 2| mgZj fṯgi eṭbi cāvb eṯṯ tKvbṯU?
  - K) ṯm, b
  - L) kvj
  - M) ARṯ
  - N) MRṯ
  
- 3| mgZj fṯgi cṯKZ.eṯṯvṯQv`b kZKiv KZ fṯM?
  - K) 32
  - L) 50
  - M) 60
  - N) 75
  
- 4| mi Kvi Kxfṯṯe ṯKQycwi gvY `Lj KZ.ebfṯṯg D×vi KṯiṯQb?
  - K) Kṯṯ.ebvṯṯṯbi gva`ṯg
  - L) DWj U evMṯvb mṯṯói gva`ṯg
  - M) Kṯṯ.ebvṯṯb I DWj U evMṯvb mṯṯói gva`ṯg
  - N) ṯvKv cṯṯṯṯbi gva`ṯg

### cW 2.4 MōgxY eb



#### G cW tḵtḵl Avṛṛb –

- MōgxY eb Kx Zv ḵj LtZ cviṭeb|
- MōgxY eṭbi mṛúṭ`i cwi gvY ej ṭZ l ḵj LtZ cviṭeb|
- MōgxY eṭbi eṭḵl Avṛṛb l MvQciv v mṛúṭḵAvṭj vPbv KiṭZ cviṭeb|
- MōgxY eṭbi ,iæZ;eṽLṽ KiṭZ cviṭeb|



MōgxY eb ej ṭZ mvariYZ  
emoi Awḷḷbv, emoi  
Pmi cḵk ev gvṭVi cṭḵki  
MvQciv ṭKB eṣṽq|



#### MōgxY eb

ersjṭḵ ḵk Ggb GKḵU Mōgl cvlqv hrṭe bv  
thLṽṭb tḵṭbv MvQ ṭbB| MvQ Qvov MōgxY Rxeb  
AKíYxq| GQvovl mvgmRK ebrqb KgḵPri  
AfZceᶜ mvdṭj`i dṭj Zḵbrgj-Kfṽṭe thme  
GjvKvq MvQciv v Kg ḵQj, GLb tmLṽṭb cṭḵ  
MvQciv v RbḷṭZ`i iæ KṭiṭQ| MōgxY eb ej ṭZ  
mvariYZ emoi Awḷḷbv, emoi Pmi cḵk ev gvṭVi  
cṭḵki MvQciv ṭKB eṣṽq| GQvovl iv`li `ḡṽṭi,  
tij jvḷṭbi cṭḵkᶜmi Kvix l temi Kvix ms`vi  
Dṭ`ṽṭM mvdj`RbKfṽṭe ebrqb Kiv nṭ`Q|

#### mṛúṭ`i cwi gvY

MōgxY ebB nṭ`Q  
AmevecĪ ḵbgᶑY l  
Ryj ḵb KṭṽVi Ab`Zg  
cḵḷḷb Drm|

ḵPivPvi Zfṽṭe MōgxY ebB nṭ`Q AvmevecĪ  
ḵbgᶑYi Kv Ges Ryj ḵbi Ab`Zg cḵḷḷb Drm|  
tḵṭbv tḵṭbv Z` tḵK Rṽbv hvq th,  
Kvómṛúṭ`i ṭgvU cṭḵqvRṭbi kZKiv 80 fṽMB  
MōgxY eb tḵK cvlqv hvq| MōgxY eb mgxᶑY  
cḵZṭe`b tḵK Rṽbv hvq th, ersjṭḵḵi MōgxY  
eṭb meᶑgvU cḵq 54,71,537.8 NbvḡUvi  
eṭḵmṛúṭ`i ṭqṭQ|

ḵPĪ 24 t MōgxY eṭb eṭḵṭivcb

#### eṭḵl Avṛṛb

mviṭḵ`kRṭo MōgxY eb ṭviv  
mᶑ eṭḵl Avṛṛbṭbi cwi gvY  
cḵq 2.71 j ᶑṭ tn±i |

ḵeṽṭQbæGes mviṭḵ`kRṭo Qvṭṭq ḵQvṭṭq ḵv mṭZj| MōgxY eb cḵZ`K AĀṭj B ḵKQvḵKQyeṭḵ  
Avṛṛb mᶑ Kṭi ḵṭḵ| cwi Kíbv Kḡkṭbi GKḵU Z` tḵK Rṽbv hvq th, mviṭḵ`k Rṭo  
MōgxY eb ṭviv mᶑ eṭḵl Avṛṛbṭbi G cwi gvY cḵq 2.71 j ᶑṭ tn±i | eṭḵl ḵbab bv Kṭi ḵekij G  
eṭḵmṛúṭ`i Drcv`bB hṽ e`envi Kiv nṭZv, Zvṭj cḵZ eQi cḵq 5,46,587.4 NbvḡUvi  
Kv Ges cḵq 22,00,509.7 NbvḡUvi Ryj ḵb Avni Y Kiv thṭZv|

#### MōgxY eṭbi MvQciv l cṔx

MōgxY eṭb mvariYZ  
Avg, Rvg, Kṽṽj, ḵj Pz  
KoB, ḵkgj, evejv,  
ḵbg, eṭk, ṭeZ, Zj,  
ṭLRj, bviṭKj, mḡvvi  
BZ`ḵ MvQ ṭ`Lv hvq|

MōgxY eb AṭbK cRḵWzi MvQciv vq mgx| Gṭi gṭa` Avg, Rvg, Kṽṽj, ḵj Pz KoB, ḵkgj,  
evejv, ḵRMv, ḵbg, ArgiaR, ṭMjvcRvg, Mve, ṭjeyK`g, mṭd`v, Zjv, ṭLRj, bviṭKj,  
mḡvvi, eṭk, ṭeZ, Ab`ṽb`j Zṽṭbv MvQ BZ`ḵ ṭ`Lv hvq| Mōṭgi gvḷy eṭḵl ṭivcṭYi mgq Gi  
eúmea e`enṽṭi i ḵṭK j ᶑṭ`ivṭLb| dṭj Gme MvQ ṭḵK Zviv GKvṽṭi cḡᶑ, KvW, Ryj ḵb

Ges Kṭliṭkī e'enṭii mvgMō tctq ṽṭKb| GLṽṭb DṭjL ṽṭK th, iv̄li ḡṽṭi KoB,  
ṭki, ṭbg, ṭkgj, ejev, tgnMṭb, GKṭkqv, tiBb ṭJ<sup>o</sup>BZ<sup>w</sup> MṭQcyj ṽl tiṽcY Kiv nṭq ṽṭK|



K- ṭṽṭqj

L- w̄ṭb Kṽb

ṭP̄ 25 (K, L) t MōgxY eṭbi cṽL



ṭP̄ 26 t MōgxY eṭbi ṭMiṭṭṭ

MōgxY eb Ryj ṽb mieivṭni  
cāṽb Drm| eṭk, teZ |  
Ab̄ṽṭ j Zṽṭb MṭQṭi | ci  
ṭbṭP̄ Kṭi ṭṭki ṽṽṭbṽe  
ṽṭb Mṭo DṭVṭQ ṽṽṭbṽe  
Kṭliṭkī |

**MōgxY eṭbi , iṭj**

Ryj ṽb mieivṭni cāṽb Drm nṭj ṽ MōgxY eb| MōgxY eṭbi | ci ṭbṭP̄ Kṭi ṭṭki ṽṽṭb ṽṽṭb  
Mṭo DṭVṭQ ṽṽṭbṽeṭṭi ṭki, dṭj eṭ tj ṽṭKi Kḡṭs ṽṽṭbi mṭhṽM mṭo nṭ<sup>o</sup>Q| eṭk, teZ |  
Ab̄ṽṭ j Zṽṭb MṭQṭi | ci ṭbṭP̄ Kṭi ṭṭki ṽṽṭbṽe ṽṽṭb Mṭo DṭVṭQ ṽṽṭbṽeṭṭi Kṭliṭkī |  
Gme Kṭliṭkī ṭṭki eṭ tj ṽṭKi, ṽṭkl Kṭi brix mḡṽṭRi A\_<sup>o</sup>DcṽRṭbi Ab̄Zḡ cāṽb  
Dcṽq| ZṽQṽṭ MōgxY eṭb cṽṭ MṭQcyj ṽ ṽKṽq cṽi ṭṭki fvi mvg<sup>o</sup> i ṭṭṽ nṭ<sup>o</sup>Q Ges emZemṭi





### cuṭVvĒi gj-ṽqb 2.4

mĪWK DĒṭi i cuṭk ūJK ṽPý (✓) ṽ b|

- 1| MġxY eṭb eṭv"Q`ṭbi cwi gvY KZ?  
K) 2.21 j ṭ| tn±i  
L) 2.51 j ṭ| tn±i  
M) 2.71 j ṭ| tn±i  
N) 2.91 j ṭ| tn±i
  
- 2| ṭ`ṭki Kw I eukm=úṭ`i cṭqvRṭbi kZKiv KZ fiM MġxY eb ṭ`ṭK ṽgUṭbv nṭq  
\_ṽṭK?  
K) cṭq 80 fiM  
L) cṭq 70 fiM  
M) cṭq 60 fiM  
N) cṭq 50 fiM
  
- 3| MġxY eb ṭ`ṭK Kx cwi gvY Kw Avni Y Kiv nq?  
K) 50,71,537.8 NbvṽUvi  
L) 45,57,137.8 NbvṽUvi  
M) 44,71,537.8 NbvṽUvi  
N) 56,72,438.3 NbvṽUvi







bv̄m̄i tZ Q̄i v̄Ki Av̄m̄gY  
tevk nq| Q̄i v̄K t̄K  
W̄v̄ús Ad, DBj̄Us,  
K̄v̄vi, eBU, Av̄M̄giv  
BZ̄w̄ tiM nq|

**Q̄i v̄K N̄UJ tiM t** bv̄m̄i tZ Q̄i v̄Ki Av̄m̄gY tevk t̄Lv hvq| Q̄i v̄K M̄t̄Qi vk̄Ko t̄K īiæ  
K̄i K̄v̄ ch̄š̄ th t̄K̄v̄b̄ v̄b Av̄m̄gY K̄i tZ cv̄i | gv̄ŪtZ th Q̄i v̄K v̄K Zv t̄K W̄v̄ús  
Ad, DBj̄Us (b̄t̄q̄cov), v̄j d t̄bK̄i v̄mm (cv̄Zv cPb), K̄v̄vi, eBU, UcW̄v̄B (Av̄M̄giv)  
BZ̄w̄ ti v̄Mi m̄p̄ nq| Q̄i v̄K Av̄m̄ḡYi dt̄j M̄t̄Qi cv̄Zvq b̄v̄v Av̄K̄v̄Zi v̄M ev cPb m̄p̄  
nq| P̄v̄v M̄v̄Q b̄t̄q̄ c̄to ev ḠtZ c̄mbi Af̄v̄eR̄v̄Z j̄ q̄Y t̄Lv hvq|

**ēv̄K̄t̄Ūv̄i q̄v̄N̄UJ tiM t** ēv̄K̄t̄Ūv̄i q̄v̄ v̄v̄v Av̄m̄v̄š̄i nt̄j M̄t̄Q t̄K̄v̄i v̄mm, ēv̄x̄ n̄m, DBj̄Us,  
t̄bK̄i v̄mm, iU, K̄v̄vi, Mj BZ̄w̄ ti v̄Mi j̄ q̄Y t̄Lv hvq| KLbI KLbI M̄t̄Qi cv̄Zvq v̄M  
c̄ōtZ t̄Lv hvq|



**v̄P̄ 28 t̄m̄ȳv̄i i K̄v̄vi tiM**

f̄v̄B̄i v̄m Av̄m̄v̄š̄ tiM  
v̄P̄K̄r̄m̄v̄q ev v̄ḡt̄b  
GLbI t̄K̄v̄b̄v̄ K̄v̄h̄R̄i  
I l̄ḡ Ām̄e®Z̄.nq̄ v̄b|

**f̄v̄B̄i v̄m N̄UJ tiM t** f̄v̄B̄i v̄m v̄v̄v Av̄m̄v̄š̄i M̄t̄Qi cv̄Zvq n̄j K̄v̄ I Nb m̄ēš̄R̄i t̄gv̄R̄v̄BK, cv̄Zv  
n̄j t̄ n̄l qv, cv̄Zv t̄K̄v̄v̄b̄v̄, cv̄Zvq t̄M̄j v̄K̄v̄i v̄M, t̄bK̄i v̄mm BZ̄w̄ D̄c̄m̄t̄M̄P̄ m̄p̄ nq|  
f̄v̄B̄i v̄m Av̄m̄v̄š̄i M̄t̄Qi tiM v̄P̄K̄r̄m̄v̄q ev v̄ḡt̄b GLbI t̄K̄v̄b̄v̄ K̄v̄h̄R̄i I l̄ḡ Ām̄e®Z̄.nq̄ v̄b|  
D̄b̄z̄ḡv̄t̄bi ēx̄R ēv̄v̄i I t̄i v̄M̄v̄v̄š̄i M̄v̄Q t̄Lv̄ḡv̄l̄ D̄c̄to I c̄v̄p̄t̄q̄ t̄dt̄j Ḡ tiM v̄ḡt̄bi t̄P̄v̄  
K̄i v̄ nq|

**ciR̄ex c̄v̄N̄UJ tiM**

īm̄t̄k̄v̄l̄K, cv̄Zv̄t̄f̄v̄R̄x,  
īt̄q̄v̄t̄cv̄K̄v̄, v̄j d t̄i v̄j̄v̄i,  
cv̄Zv̄ v̄Q̄ K̄v̄ix, K̄v̄Ü  
v̄Q̄ K̄v̄ix BZ̄w̄ K̄x̄Uc̄Z̄½  
M̄v̄Q̄t̄K Av̄m̄gY K̄i |

ebR ešq̄i ciR̄ex c̄v̄N̄UJ ti v̄Mi ḡt̄ā c̄v̄v̄Z̄ K̄v̄g. I K̄x̄Uc̄Z̄½ N̄UJ ti v̄M̄B D̄t̄j v̄t̄h̄v̄M̄ |  
b̄v̄v̄v̄ c̄R̄v̄m̄Z̄i K̄v̄g. I K̄x̄Uc̄Z̄½ M̄t̄Qi K̄v̄Ü I cv̄Zv̄i im ev Ab̄v̄b̄ D̄c̄v̄v̄b̄ t̄L̄t̄q̄ t̄ēt̄P̄ v̄t̄K |  
Āt̄b̄K̄ m̄ḡq̄ K̄v̄g. I K̄x̄Uc̄Z̄½ ev t̄c̄v̄K̄v̄ḡK̄t̄oi Av̄m̄ḡY M̄t̄Q ti v̄Mi j̄ q̄Y t̄Lv hvq|  
m̄v̄v̄i YZ̄ īm̄t̄k̄v̄l̄K t̄c̄v̄K̄v̄, cv̄Zv̄t̄f̄v̄R̄x̄ t̄c̄v̄K̄v̄, īt̄q̄v̄t̄cv̄K̄v̄, cv̄Zv̄ t̄gv̄P̄ov̄t̄b̄v̄ t̄c̄v̄K̄v̄ (v̄j d t̄i v̄j̄v̄i),  
cv̄Zv̄ v̄Q̄ K̄v̄ix t̄c̄v̄K̄v̄, K̄v̄Ü v̄Q̄ K̄v̄ix t̄c̄v̄K̄v̄ BZ̄w̄ M̄v̄Q̄t̄K Av̄m̄gY K̄i |

**v̄K̄Q̄ȳm̄v̄i Y ti v̄Mi j̄ q̄Y I c̄āZ̄K̄v̄i**

**Q̄i v̄K̄R̄v̄Z̄x̄q̄ tiM**





- K) `B
- L) wZb
- M) Pri
- N) cvB

2/ MřQi ci RřxNıUZ ti vM Křfiře me`fi jvf Kři?

- K) gmU řvi v
- L) ti vMRřvYřvi v
- M) wæev D"P Zvcgvıvi gvařg
- N) Av`Zvi gvařg

3/ Aci RřxNıUZ ti vM Křfiře nq?

- K) tgřij K Dcv`řbi `ř Zv/AvıaK", wæev D"P Zvc ev`ř Z evqřvi v
- L) QřvK řvi v
- M) řvBi vm řvi v
- N) e`vKřUvi qv řvi v

4/ cvZvq nıj Kv I Nb meřri tgvRıBK tKıv&aiřbi ti vM?

- K) QřvKNıUZ
- L) e`vKřUvi qvNıUZ
- M) řvBi vmNıUZ
- N) Aci RřxNıUZ

5/ Mıgvři i tj vi vřim ti vřmi Kvi Y Kř?

- K) QřvK
- L) řvBi vm
- M) e`vKřUvi qv
- N) ci MıQv



cvZv , Ušbv tciKv cvZvK  
šbŕi t`ŕni Pvi cvŕk gšo  
tbq ev KvŕŪi mŕ½ cvZv  
Rvotq eim Kŕi |

**cvZv , Ušbv tciKv t** GRvZvq tciKv cvZvK šbŕi t`ŕni Pvi cvŕk gšo tbq ev KvŕŪi mŕ½  
cvZv Rvotq eim Kŕi | thgb- i qŕtciKv | thŕnZzG tciKv , tŕv cvZvi AveiŕY eim Kŕi ZvB  
mivmwi KxUbrkK cšqvm Kŕi Gŕi `gb Kiv KwWb | KvŕRB G tciKv `gŕbi Rb" agv  
mšKvix KxUbrkK, th , tŕvi KxUcZ½ webó Kivi ŕgZv `xN°vqx tm , tŕv e`envi KiŕZ nq |  
vj bŕWb, tmŕfb I tgj w\_qb G aiŕbi KxUbrkK |



šPŦ 31 t i qŕtciKv

gvRiv tciKv KvŕŪi ŕFZŕiB  
RxebPµ mšubŕKŕi |

**gvRiv tciKv t** G tciKv t`LŕZ i qŕtciKvi gŕZvB | Giv KvŕŪi ŕFZŕiB RxebPµ mšubŕKŕi  
Ges Mŕŕŕi ŕmZmŕab Kŕi | thŕnZzGiv KvŕŪi ŕFZŕi \_vŕK ZvB KxUbrkK ŕŕq Gŕi `gb  
Kvŕŕi nq bv | tKvŕv KvŕŪi gvRiv tciKv AvµgŕYi mŕ\_ mŕ\_B tciKv aŕi tgŕi tŕj vB G  
tciKv `gŕbi DĚg cšv |



šPŦ 32 t gvRiv tciKv









ivRkix, PÆMg, Kugj v I mtj U tRj vq cāvbZ Fij kv I emiqj v evtk eBU tiM t`Lv hvq|



**tKI ovMtQi AvMgivi tiM t** G tivMi j ḡY mywi MtQi AvMgivi gtZvB| mvBtUvṭuviv (Cytospora sp.) bvgK QĪvK ḡviv tKI ov MtQ G tiM nq|

**evtki cPb ev eBU tiM t**

ivRkix, PÆMg, Kugj v Ges mtj U tRj vq cāvbZ Fij kv I emiqj v evtk G tiM t`Lv hvq| G tivMi dtj evkSivoi evtki Koj- (bZb MRvṭbv evk) giv hvq| AvKvi ṭgmbqv ṭvṭv (Acremonium strictum) bvgK QĪvK ḡviv G tiM nq| tivM AvmšI Koj- tKtU tdtj G tivMi cĪ ṭvṭv ḡb Kiv hvq| evtki cPb ev eBU tiM evsjṭṭki meṖ t`Lv hvq| Giv LḡB , iṭZcṖ

ṭṖ 34 t evtki eBU tiM

ebR eṭṭi cāvb KṭqKv ḡvZKviK tciKv I Zṭ`i cāZKvi

**K. bmvṭi PviMtQi tiM**

GṭMṭUm Bcivj b bvgK tciKvK KvU qvgṭj |

**KvU qvgṭ** GṭMṭUm Bcivj b (*Agrotis ipsilon*) bvgK tciKvK KvU qvgṭ(Cutworm) ejv nq| G tciKv bmvṭiZ PviMtQi cĪZ ḡvZmvab Kṭi | KvU qvgṭmavi YZ ṭṭi tejvq 3-8 tmṭUgUvi gṭUv ṭṭP MṭZḡ ṭṭṭṭ ṭṭK Ges ivṭZi tejvq gṭUv Dcṭi tei nṭq Avṭm| Gme tciKv tQvU PviMtQi KvU tKtU tdtj | AṭbK mgq bZb MRvṭbv cvZv tLṭṭ tdtj | G aiṭbi tciKv ṭṭṭṭI Z Kvbdivi RvZiq (bMevR) MtQi ḡvZ Kṭi | thṭnZzKvUv PviMtQi ṭṭP G aiṭbi tciKv ṭṭK ZvB G tciKv ḡṭbi DĒg cšv nṭj v MtQi ṭṭP tṭK aṭi Gṭb ṭṭṭi tṭj v| Gme tciKv gṭUv ṭṭP tṭK tei Kivi Rb` cṭb ṭmP ṭṭZ nq| cṭb ṭmP ṭṭj tciKv tei nṭq Avṭm| 10 ṭj Uvi cṭbi ṭṭṭ 35 ṭṭṭj ṭṭUvi WvBA`ṭj ṭṭṭ-20 Bṭm ṭṭṭṭṭ ṭṭRv gṭUṭZ cṭṭṭ Kṭi G tciKv ḡb Kiv hvq|

KK&P`vdivi bvgK miv`v LbbKvix Kxov i`evi, ṭm\_b, evejv, cvBbRvZiq MtQi Pvi webó Kṭi |

**KK&P`vdivi t** KK&P`vdivi (Cock chafers) bvgK miv`v LbbKvix Kxov (White grubs) i`evi, ṭm\_b, evejv, cvBbRvZiq MtQi Pvi webó Kṭi | ṭj DṭKvṭdṭj m (*Leucopholis* sp.), ṭṭṭṭ ṭṭṭṭq (Holo-trichia sp.) I Avṭṭṭṭṭ (Anomala sp.) bvgK Kxov miv`v LbbKvix Kxov ṭṭṭṭ cṭi ṭṭZ | G Kxov 5 tm. ṭṭ. chšleo nṭZ cṭi Ges "c" AvKvZi nq| Giv i`qṭcivKv ṭṭKv Ae`vq gṭUṭZ MtQi Pvi gṭ- tLṭṭ tdtj | Giv 3-5 gṭṭi Pvi gṭUv Dcṭi fṭM tṭK 5-10 tm. ṭṭ. ṭṭṭṭi gṭ- ṭṭK tKtU tdtj | dtj AvmšI Pvi i`ṭṭṭ hvq| eq` Kxov eo MtQi cvZv Pṭi tLṭṭ tdtj | G LbbKvix Kxov AvmšI Pvi Avṭkṭṭṭṭ ṭṭK | gṭU Lṭṭ A`ev Rj ṭmP ṭṭṭ gṭUv ṭṭP tṭK Gṭ`i tei Kṭi nṭZ ṭṭṭ ṭṭṭi tdtj G Kxovi nṭZ tṭK ṭi nṭB cvl qv ṭṭṭ | ZvQxov WvBA`ṭj ṭṭṭ Bṭm 10 ṭj Uvi cṭbṭZ 40 ṭṭṭj ṭṭUvi ṭṭṭṭṭ ṭṭRv gṭUṭZ cṭṭṭ Kṭi I G Kxov ḡb Kiv hvq|



ᵛPṪ 35 t tm, tbi K'vivi ti vM

μ'vmtcḡWbUv bvgK GK  
aitbi tciKv cḡtg cvZv  
Ges cti bZb kvLvcjē  
tLṫ Mvgvi MṫQi  
ḡḡZmvab Kṫi |

**Mḡṫi i cvZṫfṫRṫ tciKv t** μ'vmtcḡWbUv (*Craspedonta* sp.) bvgK GK aitbi tciKv  
cḡtg cvZv Ges cti bZb kvLvcjē tLṫ Mvgvi MṫQi ḡḡZmvab Kṫi | elḡ i iṫZB Gṫi  
AvμgY i iṫnq Ges 3-4 gṫmi gṫa "B MvQ cvZvkḡ" nṫq cṫo | tenk Avμvšl MvQ cvZvkḡ  
nṫq gvi v hvq | teKvBṫgwi qv bvgK GK cKvi ci Rṫex cḡYx evMṫb e'envi Kṫi G tciKvi  
AvμgY nṫZ cōZKvi cvl qv hvq |

**tgnMbi cvZṫfṫRṫ tciKv t** ᵛncimdvBUv tiven=v (*Hypsiphyta robusta*) tgnMḡ MṫQi  
cvZv tLṫ axṫi axṫi KvṫŪi gṫa "XṫK cṫo | G tciKvi Kṫov AṫbK mgq MṫQi dḡ I dj  
AvμgY Kṫi | Avμvšl kvLvcḡkvLv ḡḡ nṫq cṫo Ges cti gvi v hvq |

**kvṫj i nUḡW (mviKw) ᵛQ`K tciKv t** ṫnvcṫj ᵛmi vṫm ṫvBibKivbm (*Hoplocerambyx*  
*spincornis*) kvj MṫQi mviKw AvμgY Kṫi ᵛebó Kṫi | mvariYZ G tciKv KvUv kvj MvQ  
A\_er kvj MṫQi giv Ges ḡḡ Astk ᵛḡg cṫo | Avμvšl ṫb t\_ṫK AvVvRvZṫq im ᵛbMḡ  
nq | Avμvšl MvQ axṫi axṫi ḡḡ nṫq gvi v hvq |

UmbKv ᵛbṫfṫdivbvi j vṫi  
ᵛkgj MṫQi kvLv ᵛQ`a  
Kṫi kvLvcjṫei kvṫl  
bvj v `Zvi Kṫi |

**ᵛkgj i kvLv ᵛQ`K tciKv t** UmbKv ᵛbṫfṫdivbvi (*Tonica niviferana*) Kṫov ᵛkgj MṫQi  
kvLv ᵛQ`a Kṫi kvLvcjṫei kvṫl bvj v `Zvi Kṫi | G ᵛQ`a ᵛṫq im ev AvVṫj v c`v ᵛbMḡ nq |  
Avμvšl ṫb t\_ṫK MṫQi Dcṫi i Ask axṫi axṫi gṫi hvq | Gi cōZKṫi i Rb`- 1. avṫj v  
KivZ ᵛṫq Avμvšl kvLvcḡkvLv ṫKṫU ṫdj ṫZ nṫe, 2. KvUv ṫb tenḡ ᵛḡg vi j v MṫZ nṫe, 3.  
elḡKṫj MvQ KvUv eḡ i vLṫZ nṫe Ges 4. Avμvšl MvQ ṫKṫU ṫdj ṫZ nṫe |

ᵛRI ṫRiv KbdvUv I  
K'vj ᵛdqv ᵛj bṫUj vi Kṫov  
ṫKl ov MṫQi KvU ᵛQ`a  
Kṫi cḡZ ḡḡZmvab  
Kṫi |

**ṫKl ov KvU ᵛQ`K tciKv t** DcKjṫq ebvṫṫj i cḡq kZKiv 50 fṫM MvQ G tciKv ḡviv  
Avμvšl nq | ᵛRI ṫRiv KbdvUv (*Zewjera conferta*) I K'vj ᵛdqv ᵛj bṫUj v (*Calfia lintola*)  
Kṫov ṫKl ov MṫQi AvμgY Kṫi KvU ᵛQ`a Kṫi MṫQi cḡZ ḡḡZmvab Kṫi | G tciKv MṫQi  
KvU I kvLvcḡkvLv ṫf` Kṫi KvṫŪi Mṫṫi cḡek Kṫi | dṫj KvṫŪ GKᵛU bvj v `Zvi nq |

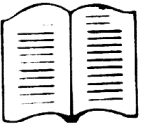
Avμsī MvQ ḡḡ nḡ cḡ Ges cōj evZvḡm tḡḡ cḡ | 6-10 eQi eqḡmi MvQ G tciKv  
ḡv v tēk Avμsīnḡ |



ḡPḡ 36 t tKl ori KvŪ ḡQ`K tciKv

tciKctŪiv vi ḡdḡ v tciKvi  
AvμḡḡY ḡki, KoB I  
Mvgvi MḡQi ḡḡfmeK eḡḡ  
ḡḡZMŌ`nḡ |

**ḡki, KoB I Mvgvi MḡQi cvZḡḡvRḡ tciKv t** tciKvctŪiv vi ḡdḡ v (*Plecoptera reflexa*)  
bvḡK tciKvi meḡ Kxov ḡki MḡQi big KḡP cvZvi im I cvZv tLḡḡ tḡḡ | dḡḡ MḡQi  
ḡḡfmeK eḡḡ ḡḡZMŌ`nḡ | eo MḡQi Zḡbvḡ tQvU MvQB tēk Avμsīnḡ | MvBA`ḡḡ ḡḡB-20  
Bvḡ 10 ḡḡ Uvi cvbḡZ 25 ḡḡḡḡ ḡḡ Uvi ḡḡḡḡḡ Avμsī MḡQ t`ḡŪKḡi tciKvi AvμḡY tiva  
Kiv hvḡ |



**mviḡḡ** W`ḡḡs Ad, iaḡ iU, AvMvgiv ti vM, cvZvi ḡvM ti vM cḡḡZi KviḡY bvmḡḡ i vevfbc  
aiḡbi Pvi vMvQ, thḡb- Mvgvi, tm, b, K`g, ivevi, tKl or cḡḡZi e`vcK ḡḡZ nḡ | bvmḡḡ i  
Pvivi Gme ti vM ḡḡbi Rb` ceḡt`ḡKB vevfbc`ḡb e`e`v MḡY Kiv DḡPZ | cōKḡZK I  
mḡRZ evMḡḡbi tivḡMi ḡḡḡ mḡwi I tKl ori AvMvgiv ti vM Ges evḡki cPb ti vMB cḡḡb |  
mḡiēḡbi eḡ msL`K mḡwi MvQ eZḡḡḡ AvMvgiv ti vM Avμsī | Gme ti vMe`ḡḡ Qvov |  
bvmḡḡ, cōKḡZK I mḡRZ evMḡḡb vevfbcḡi Kḡḡi KḡUcZḡ AvμḡY Kḡi cḡZ ḡḡZmḡḡb Kḡi |  
Dchḡ ḡḡb e`e`v I KḡUḡḡḡKḡi e`enḡḡi gvaḡḡ Gme KḡUcZḡḡi AvμḡḡYi nḡZ t`ḡK  
ḡḡ`evb ebR eḡḡ i ḡḡḡ Kiv hvḡ |



### cŕVvĒi gj-ŕqb 3.3

#### mĀK DĒŕi i cŕk ũK ũPý (✓) ũ b|

- 1| gj- ev ũkKo cPv ti vŕMi cĀZKvi Kx?  
 K) MŕŕQi tMvovq cŕnb RgŕZ br t` l qv  
 L) MŕŕQi tMvovq mvi l cŕnb t` l qv  
 M) QŕvKbŕkK l lŕ cŕŕqM Kiv  
 N) MŕŕQi tMvovi gmU Avj Mv Kŕi t` l qv
  
- 2| Mŕgvi bŕmŕi ŕZ gj- cPv ti vM Kx Kvi ŕY msMŕVZ nq ?  
 K) QŕvKRŕbZ Kvi ŕY  
 L) e`iKŕŕŕi qŕRŕbZ Kvi ŕY  
 M) fŕBi vŕmRŕbZ Kvi ŕY  
 N) Ab`v` Kvi ŕY
  
- 3| DBj ũ (ŕŕilt) ti vŕMi j ŕŕY Kx?  
 K) cvZv i ũKŕq hŕl qv  
 L) cvZv tŕŕZŕq cov  
 M) cvZv gŕi hŕl qv  
 N) cvZv Sŕo hŕl qv
  
- 4| tKvŕŕQ`K tciKv ũbqŕŕYi Rb` e l ŕKŕŕj MŕQ Kŕŕv eŪ i vLŕZ nq?  
 K) tŕ, ŕbi KŕŕŪi ũQ`K tciKv  
 L) kvj MŕŕQi nŕŪŕ U tciKv  
 M) ũkgŕj i kvLŕ ũQ`K tciKv  
 N) evej vi t`j tciKv

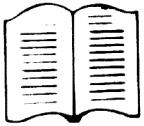
**e'enwiK**

**cW 3.4 ebR eḏḏi tiṡṡ I tciKvgvKo chḏeḏḏY**



**G Ablyj b tkḏl Avcib –**

- ebR eḏḏi ḏḏZKi tciKvgvKo ḡPbḏZ cviḏeb/
- ebR eḏḏi ḏḏZcYḏiṡṡMgnḏ kYv<sup>3</sup> KiḏZ cviḏeb/



**cūṡṡK Z\_**

Avcbvi tKvmḏBḏqi BDḡbU 3 Gi cW 3.1, 3.2 I 3.3 fḡḡ vḡḡḡ cḡo ebR eḏḏi tiṡṡ I tciKvgvKo mḡḡḡKḡÁvbj vḡf Kiḏḏ Ges tm AvḡḡḡḡK ebR eḏḏi tiṡṡ I tciKvgvKo chḏeḏḏY Kiḏḏ/

**DcKiY**

Avcbvi tKvmḏB I Ab'vb' mṡṡṡK cyḡKv, K'ḡḡḡiv, ḡḡḡḡ, e'vUṡṡ BZ'ḡḡ |



ḡPḏ 37 t mṡṡṡḡ W tciKv



ḡPḏ 38 t i'qḡḡḡḡ



ṯPṯ 39 t KvŪ ṯQ`K tciKv



ṯPṯ 40 t gvRiv tciKv



ṽPĪ 41 t mṽwi i K'vṽvi tiṽM



ṽPĪ 42 t K`ṭgi cṽZvi `ṽM tiṽM



ṽPĪ 43 t i verṭi i AvMgiv tiṽM



ṿPĪ 44 t tm\_ṯbi Kṿṿi tiṿM



ṿPĪ 45 t evṯki enBU tiṿM

**Kṿṿi aviv**

- ṿUDUi ev tKṿṿi eb weṯKIÁ A\_er tKṿṿi ebKgrṯhṿ ebR eṯṯi maviY tiṿM I tciKvṗKo tPṯbb, ZṿṯK ṿṯq Avcbvi ṿbKU`eb GjvKv cwi`kṯb hṿb| hṿ` KṿṿiK I bṿ cib Zṯe Avcbvi tKṿṿiBṿU mṯṯ ṿṯq eb cwi`kṯb hṿb|
- tKṿṿiB cṯo Avcbṿ th ZṿṿK avi bṿ jvf KṯiṯQb eb cwi`kṯb Zv ev`ṯe cĀqṿM Kṯi ebR eṯṯi tiṿM I tciKvṗKongy kYv³ Kiab| G e`vcṿṯi cĀqṿRṯb Avcbvi ṿUDUi/eb KgRZPA\_er Ab` Kvi I mṿṿh` ṿbb|
- tiṿM I tciKvi bḡṿv mṯMṯ Kiab | thme tṯṯi bḡṿv mṯMṯ Kiv mṯe bq tmṯṯi Kṿṯgṿ\_vKṯj iṿOb Qwe Zṯṯy|
- tiṿM I tciKvi bḡṿv A\_er Qwe ṿṯq Avcbvi ṿUDUṯi mṯ\_ Avjvc Kṯi bḡṿv kYv³KiY ṿṿṶZ tṿṿb|
- cĀZṿU bḡṿvi ṿPĪ AsKb Kiab Ges kYv³KviX `enKó`mgr Avcbvi e`enṿi K LvZvq ṿj Lṯy|



**BDibU 4  
Rxe%eipT̄i I cāZtek**

**BDibU 4 Rxe%eipT̄i I cāZtek**

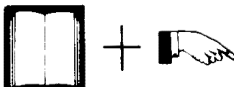
Avgv̄i Pricv̄k Avgiv AmsL̄ Rxe t̄L̄Z cūB| Gi ḡtā itq̄Q AwZ ¶Z̄t̄\_K iia K̄ti  
mekv̄ eo Dv̄m̄c I cōYx| Gme Dv̄m̄c I cōYxK̄z̄j i lci cwi teṯki weivU c̄f̄ve itq̄Q| ZvB  
mKj Dv̄m̄c ev cōYx me-ṯṯb t̄Lv hvq bv| thgb- mȳiet̄bi jeYv̄<sup>3</sup> gmv̄t̄Z th  
ḡvb̄t̄MōfRv̄Ziq Mv̄Q t̄Lv hvq Zv c̄v̄v̄v̄o ebv̄Āt̄j t̄Lv hvq bv| t̄Zgub̄f̄v̄te mȳiet̄bi weL̄v̄Z  
it̄q̄j teṯj Uv̄BMv̄il cveZ̄ ebv̄Āt̄j t̄Lv hvq bv| Mv̄Rxc̄j I gaḡz̄j i kij Mv̄Ql cveZ̄  
PĀEMōg t̄Lv hvq bv| i v̄Rk̄v̄m̄t̄Z th iKg dR̄v̄j Avg Dr̄cb̄n̄q, t̄ṯki Ab̄v̄b̄ AĀt̄j Ggb  
m̄ȳv̄ yAvg Dr̄cb̄n̄q bv| G t̄\_K tev̄Sv̄ hvq wef̄b̄ēc̄ōK̄w̄ZK cwi teṯk wef̄b̄ēaiṯbi thme  
Dv̄m̄c ev cōYx Zv̄t̄ i Avev̄m teṯQ t̄bq Zvi cāZ̄v̄i GK̄u -Z̄š; euk̄ō -ṯK| Gif̄c̄v̄te  
wef̄b̄ēR̄x̄ei mḡš̄t̄q M̄to I Vv̄ Rxe m̄=ū̄v̄q Ges t̄m Rxe%eipT̄i i v̄bq̄v̄K n̄t̄j v̄ cwi teṯk|

G BDib̄t̄ui wef̄b̄ēc̄v̄t̄V Rxe%eipT̄i i ,iaZ̄; ebR, giāR I RjR cwi teṯk I Rxe%eipT̄i;  
Rxe%eipT̄i msi ¶ṯYi cōq̄v̄R̄b̄x̄Zv̄; Rxe%eipT̄i aṯst̄m eb DR̄v̄o, ḡṯbv̄K̄j P̄ri I K̄uB̄v̄iK̄K  
cōq̄v̄Mi c̄f̄ve Ges Rxe%eipT̄i msi ¶ṯY b̄v̄k̄b̄j c̄v̄K, P̄v̄oq̄v̄L̄v̄v̄ I tev̄Umb̄K̄j M̄v̄W̄ṯbi  
c̄f̄ve m̄=ū̄t̄K̄m̄st̄¶ṯc Av̄t̄j v̄P̄v̄ Kiv n̄t̄q̄Q|

**cw 4.1 Rxe%eipT̄i i ,iaZ̄**

**G cw t̄k̄t̄i Av̄c̄v̄b̄ –**

- cāZtek i ¶v̄q R̄x̄ei f̄v̄gK̄v̄ Av̄t̄j v̄P̄v̄ Kiv̄Z c̄v̄i teṯ|
- Rxe%eipT̄i R̄v̄Ziq I Av̄šR̄v̄v̄ZK ,iaZ̄je v̄L̄v̄ K̄ti v̄j L̄Z c̄v̄i teṯ|
- v̄P̄Ēv̄eṯv̄ ṯbi t̄¶ṯ̄ Rxe%eipT̄i i ,iaZ̄; eYṯv̄ Kiv̄Z c̄v̄i teṯ|



**cāZtek i ¶v̄q R̄x̄ei f̄v̄gK̄v̄**

v̄b̄v̄ ṯ Ḡj v̄K̄v̄q wef̄b̄ēR̄x̄e I Roe-ṯi ḡtā th v̄b̄v̄eō m̄=ū̄K̄Z̄v̄t̄KB cāZtek ev B̄t̄K̄v̄m̄t̄÷g  
(Ecosystem) eṯj| thgb- ḡvb̄t̄Mōf̄ eb GK̄u B̄t̄K̄v̄m̄t̄÷g| h̄v̄ G aiṯbi GK̄u  
B̄t̄K̄v̄m̄t̄÷g weṯkl t̄K̄v̄t̄v̄v̄ K̄v̄iṯY t̄K̄v̄t̄v̄v̄ GK̄u cōYx ev Dv̄m̄c̄ i m̄SL̄v̄i ḡv̄iv̄Z̄K̄ Aeb̄v̄Z̄ N̄t̄U  
Z̄te t̄m̄t̄¶ṯ̄ c̄v̄j v̄ B̄t̄K̄v̄m̄t̄÷g ūḡv̄Ki m̄=š̄v̄b̄ n̄t̄q̄ cōte| thgb- eZ̄ṯv̄t̄b̄ mȳiet̄b̄ wec̄j  
m̄SL̄K̄ m̄ȳwi M̄v̄Q Av̄M̄v̄ḡiv̄ t̄iv̄t̄M̄ Av̄v̄v̄š̄n̄l̄ q̄v̄q t̄m̄ Ḡj v̄K̄v̄i B̄t̄K̄v̄m̄t̄÷g Av̄R̄ ḡv̄iv̄Z̄K̄ ūḡv̄Ki  
m̄=š̄v̄b̄| Ḡ t̄iv̄t̄Mi m̄v̄v̄K̄ K̄v̄iY v̄b̄v̄v̄Z̄ bv̄ n̄t̄j I av̄iYv̄ K̄iv̄ n̄t̄Q th, ḡm̄v̄i j eYv̄<sup>3</sup> Zv̄ ev̄x̄ Ges  
K̄v̄t̄j i weeZ̄ṯb̄ ḡm̄v̄i D̄c̄v̄i f̄v̄t̄M̄ c̄v̄j R̄ḡv̄i K̄v̄iṯY m̄ȳwi M̄v̄Q Ḡ m̄ḡm̄v̄ t̄Lv v̄ t̄q̄Q| v̄v̄K̄  
t̄Zgub̄f̄v̄te mȳiet̄b̄ th n̄v̄iY Ges ev̄N̄ it̄q̄Q Zv̄t̄ i m̄SL̄v̄i ḡtā I GK̄u mḡš̄q̄ it̄q̄Q| h̄v̄  
t̄K̄v̄t̄v̄v̄ K̄v̄iṯY ev̄t̄Ni m̄SL̄v̄ n̄v̄m̄ c̄v̄q Zv̄n̄t̄j n̄v̄iṯYi m̄SL̄v̄ teṯo h̄v̄te Ges Zv̄iv̄ mȳiet̄bi  
cōq̄v̄R̄b̄x̄ M̄v̄Qc̄ij̄v̄i c̄v̄Zv̄ ev̄ ev̄K̄j t̄L̄t̄q̄ M̄v̄Q̄i ¶v̄v̄Z̄m̄v̄ab̄ Kiṯe| Avev̄i n̄v̄iṯYi m̄SL̄v̄ K̄t̄ḡ  
t̄M̄t̄j Aṯb̄K̄ t̄Q̄v̄U t̄Q̄v̄U Acōq̄v̄R̄b̄x̄ M̄v̄Q̄i m̄SL̄v̄ teṯo v̄M̄t̄q̄ cōq̄v̄R̄b̄x̄ M̄v̄Q̄i c̄R̄bb̄ I ev̄x̄t̄Z̄  
ev̄v̄N̄v̄Z̄ NUv̄te| K̄v̄t̄RB̄ cāZ̄v̄i Dv̄m̄c̄ I cōYxi GK̄u v̄b̄v̄ ṯ m̄SL̄v̄ I Zv̄t̄ i ḡtā mḡš̄q̄  
cōq̄v̄R̄b̄|



v̄b̄v̄ ṯ Ḡj v̄K̄v̄q wef̄b̄ēR̄x̄e I  
Roe-ṯi ḡtā th v̄b̄v̄eō m̄=ū̄K̄  
Z̄v̄t̄K̄ cāZtek ev B̄t̄K̄v̄m̄t̄÷g  
eṯj| thgb- ḡvb̄t̄Mōf̄ eb  
GK̄u B̄t̄K̄v̄m̄t̄÷g|

Rxe%eipT̄i Avgv̄t̄ i K̄v̄l̄Z̄I  
GK̄ weivU f̄v̄gK̄v̄ c̄j̄b̄  
K̄ti|

Avgiv Av̄t̄iv̄ GK̄Uzm̄<sup>2</sup> f̄v̄te j ¶ṯ̄ K̄iṯj t̄L̄Z̄ c̄ve Rxe%eipT̄i Avgv̄t̄ i K̄v̄l̄Z̄I GK̄ weivU  
f̄v̄gK̄v̄ c̄j̄b̄ K̄ti| Avgv̄t̄ i c̄āv̄b̄ dm̄j̄ av̄b̄| av̄b̄ P̄v̄t̄li mḡq̄ R̄v̄ḡZ̄ v̄v̄v̄ aiṯbi  
t̄c̄v̄K̄v̄ḡv̄K̄t̄oi Av̄v̄ḡY n̄q Ges B̄v̄j̄v̄l̄ Aṯb̄K̄ km̄ t̄L̄t̄q̄ t̄d̄t̄j| R̄v̄ḡZ̄ Aṯb̄K̄ m̄v̄c̄ I ev̄v̄  
-ṯK̄| Zv̄iv̄ Gme t̄c̄v̄K̄v̄ḡv̄Ko I B̄v̄j̄v̄ at̄i L̄v̄q̄| K̄v̄t̄RB̄ c̄K̄uZ̄i cāZ̄v̄i cōYx̄B̄ t̄K̄v̄t̄v̄v̄

tKvrbvrite Avgv`i DcKvi Kti hv`Q| Avi ZvB G cRmZ ,tjvi thb vej yß bv NtU tmw`tk tLqj ivL`Z nte| eb DRvo nlqvi KvıY AvRKvj etbi KxUcZ½ km`t`q`Z tek Ptj Gm`Q| ZvB G`i nvZ n`Z km`i`q`vi Rb` KxUvıKK e`envi Ki`Z n`Q| dtj AtbK mgq DcKvix c`Yxı a`ysm n`q hv`Q |

**Rie%aiPÎ`i Rivıq I AvSRmZK ,ıazj**

ersjv`k Rie%aiPÎ`i fıUvi | G`tk Kgtenk cãq 5000 cRmZi Dw`c , 500 cRmZi gıQ, 19 cRmZi DfPi c`Yx, 124 cRmZi mımç, 579 cRmZi cıL I 125 cRmZi ÷Zb`cıqı c`Yx ıtq`Q| G`KK cRmZi Dw`c ev c`Yx n`Z Avgiv G`KK aıtbı DcKiY cıB| Gme DcKiY `ıayth Avgv`i `bı`b Pınn`v tgUv`Q Zv bq, AtbKt`q`Î G ,tjvi AvSRmZK ,ıazj ıtq`Q| we`k|Ggb AtbK I lıy ıtq`Q hv Dw`c ubh`m n`ZB `Zwi nq| cıL`exı AtbK Dbz`t`tk Gme I lıjai Kvıgvj tbB etj Zv`ıtk Avgv`i lci wbf`P Ki`Z nq| ersjv`tk av`bi l Kgtenk cãq 3000 fıivıBıU (variety) ıtq`Q| M`elKt`i KvıQ Gme fıivıBıU AZ`sı tjv`bıq, KvıY c`Z`K fıivıBıUı gta` wKQybv wKQyfv`jv ,Y Av`Q| tKıj c`KıKj (Genetic engineering) ev cRbb (breeding) cãıqıı gva`tg `eÁmbKMY tPóv Ktıb tekı fıM fııjv ,ıYı mgstq `vb Dc`hvMıx RivZ ev fıivıBıU D`m`eb Ki`Z| KvıRB Rie%aiPÎ`i th tKej Rivıq ,ıazj Av`Q Zv bq, AvSRmZK t`q`Î l Gi ,ıazjAcııı mıq|

ersjv`k Rie%aiPÎ`i fıUvi wntmte cıııPZ| G`tk Kgtenk cãq 5000 cRmZi Dw`c , 500 cRmZi gıQ, 19 cRmZi DfPi c`Yx, 124 cRmZi mımç, 579 cRmZi cıL I 125 cRmZi ÷Zb`cıqı c`Yx ıtq`Q| G`KK cRmZi Dw`c ev c`Yx n`Z Avgiv G`KK aıtbı DcKiY cıB| Gme DcKiY `ıayth Avgv`i `bı`b Pınn`v tgUv`Q Zv bq, AtbKt`q`Î G ,tjvi AvSRmZK ,ıazj ıtq`Q| we`k|Ggb AtbK I lıy ıtq`Q hv Dw`c ubh`m n`ZB `Zwi nq| cıL`exı AtbK Dbz`t`tk Gme I lıjai Kvıgvj tbB etj Zv`ıtk Avgv`i lci wbf`P Ki`Z nq| ersjv`tk av`bi l Kgtenk cãq 3000 fıivıBıU (variety) ıtq`Q| M`elKt`i KvıQ Gme fıivıBıU AZ`sı tjv`bıq, KvıY c`Z`K fıivıBıUı gta` wKQybv wKQyfv`jv ,Y Av`Q| tKıj c`KıKj (Genetic engineering) ev cRbb (breeding) cãıqıı gva`tg `eÁmbKMY tPóv Ktıb tekı fıM fııjv ,ıYı mgstq `vb Dc`hvMıx RivZ ev fıivıBıU D`m`eb Ki`Z| KvıRB Rie%aiPÎ`i th tKej Rivıq ,ıazj Av`Q Zv bq, AvSRmZK t`q`Î l Gi ,ıazjAcııı mıq|

wPÉıetv`b, Kgms`ıb Ges A\_`DcıR`bı Rie%aiPÎ`i ,ıazj ıtq`Q| Rie%aiPÎ`ı mıvıY gıbjııı AvM`ni KvıYB b`ıkbıj cıK` teıUmbK`ıj Mı`W` I wPıoqvLıbv mıq Kiv n`q`Q|

**wPÉıetv`b I Rie%aiPÎ`ı**

Avgiv hLb Kg`-Zıq Kvsıntq DıW ZLb QıU hvB tKıj vıj gıY tKıvıı wıR`Gj vıKıq, we`k l Ktı ebv`Atj | Gme wıR`Gj vıKıq Avb`ıı Ab`Zg wıK bZb bZb wKQyMıQcıj v ev cı`cıL | A\_`ı Avgiv Rie%aiPÎ`ı Aetj vKtıbı Rb`B tmLıtb QıU hvB | Rie%aiPÎ`ı mıvıY gıbjııı AvM`ni K\_v we`tePıv KtıB mıKıvı b`ıkbıj cıK` teıUmbK`ıj Mı`W` I wPıoqvLıbv mıq Ktı`Qb | G`Z GKı`tk thgb mıKıvıı A\_`DcıR`b n`Q Ab`ıtk Kg`-l gıbjııı wPÉıetv`b Ges wıkıt`ıı wK`ıvı t`q`Î l `Zwi n`q`Q| wıkııvıı wıvıbıDıw`c I c`Yxı m`½ cıııPZ nı qıı m`ıhvM cıv`Q|



wPĪ 46 t eb āgY wPĒwēṭbr`ṭbi Ab`Zg gva`g

wefbreaiṭbi wPĒwēṭbr`ṭb tK>`Mto Zzj t`kxq I AvšRwZK chθK AvKó.Kṭi cPž A\_©  
DcvRθ Kiv mæ nq| Gaiṭbi wPĒwēṭbr`ṭb tKṭ`i gṭa` DjLṭhW` nṭjv- w`bvRcṭji  
ivgmMi, emi kvṭji gvaecvkv, PÆMṭgi dtqR tjK, ivṭvgwUi KvBvB tjK, K· evRvṭii  
mgÿ`mKZ, wṭjṭUi `Ršícÿ, mÿietṭbi wrib cṭqU BZ`w | GQvov cvK,© wPwoqvLvbr,  
teivUmbK`ij MṭWθ `vcb Ges wēij cRwZi RxeRš` msiṭṭYi e`e`v Kṭi  
wPĒwēṭbr`ṭbKvixṭ`i AvKó.Kiv hvq| GṭZ cPž A\_©DcvRθ Kiv hvq Ges eū tjṭKi  
Kgṃs`vbl nq|



wPĪ 47 t dtqR tjṭKi tmš`thwPĒ wētgwvZ nq

**`eṭ`wkK gÿṭ ARθ**

eb` RxeRš`i gva`ṭg `eṭ`wkK  
gÿṭ ARθ Ges tmmvṭ\_ eū  
tjṭKi Kgṃs`vbl nṭ`Q |

ebmæú` w`ṭq `Zwi wkí RvZ `è`, thgb- eb` RxeRš`i Pvgov nṭZ e`vM, Ržv, j Zvṭbv MvṭQi  
Avka w`ṭq Mv`, KvV w`ṭq AvmevecĪ, euk I KvV nṭZ KvMR, ṭfIR MvQMvQov nṭZ I Iḡ, KvV  
I Dv`Qó AveRθv nṭZ cvvṭU· Ges bvbv iKṭgi `è`w` iBvnb Kṭi cPž `eṭ`wkK gÿṭ ARθ  
Kiv mæ nṭ`Q| tmmvṭ\_ eū tjṭKi Kgṃs`vṭbi e`e`vI nṭ`Q | tm KvṭY Rxe%wPĪ`i  
msi ṭṭY Ges Dbqṭb NUvṭbv GKvš`i cṭqvRb|



**mvigg**ṭ wbr`θ Gj vKvq wefbreaRie I Roe`i wbræo mæúKB BṭKvmt`÷g| thgb- g`vṭMṭF  
eb GKvU BṭKvmt`÷g| cĀZwU BṭKvmt`÷gi wefbreaDv`c I cĀYxi msL`vi gṭa` mgšq`\_vKv  
cṭqvRb| evsj vṭ`k Rxe%wPĪ`i fivŪvi wṭṭmte cvvṭPZ| Gṭ`ṭk Kgṭenk cĀq 5000 cRwZi  
Dv`c, 500 cRwZi gvQ, 19 cRwZi DfPi cĀYx, 124 cRwZi miimc, 579 cRwZi cvvL  
I 125 cRwZi `b`cvqx cĀYx iṭqṭQ| RvZxq I AvšRwZK ṭṭṭĪ G Rxe%wPĪ`i , iāZj  
Acwimxg| `ewPĪ`gq RxeRš` Gṭ`ṭki cvvitek iṭṭvi cvkvvcwK eū tjṭKi Kgṃs`vṭb,  
`eṭ`wkK gÿṭ ARθ, wPĒwēṭbr`ṭb cṭwZṭZ wēṭkl Ae`vṭ i vLṭQ|

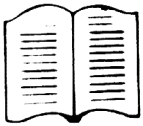


### cW 4.2 ebR, giar I RjR cwițek Ges Rie%aiPÎ"

#### G cW țkțI Avcib –



- evsj vț`țki newfbævbiÂțj i cwițek eYbV KițZ cwițeb|
- giar I RjR cwițek Kx Ges tmLvțb țKvb&aițbi Rie%aiPÎ" new`gvb Zv ej țZ I wj LțZ cwițeb|



evsj vț`țk Pri aițbi eb itqțQ| thgb- cwnno eb, g'vbțMôf eb, mgZj fiigi eb Ges MîgxY eb| cwnno ețb KLbl Rjve×Zv nq bv| KviY, G eb mgZj fiig t\_țK AțbK Dcți Aew`Z| wZbuU cveZ" tRjv, h\_v- ivıvgvU, LvMoiQıno I ev`ievb Ges PÆMîg, K- evRvi, wntj U, nıeMÄ, mbıgMÄ I tgșj fxevRvi tRjvi cwnno GjvKvq cwnno eb t`Lv hvq| Gme GjvKvi gvU tKv\_vl jvjțP Gtłj, tKv\_vl wPKb emj, Avevi tKv\_vl Dfțqi wqkY| G ețbi cãvb MıQ MRb, Mıgvi, țZj mj, KoB, tgnMıb, tm\_b BZ`w | nwiZ, wPZvevN, fıj ș, Dj ș, evbi, Bmıv, newfbæaițbi cvL, KxUcZ½ cfiwZ cãvb cŃYx|



cwnno ețbi gvU tKv\_vl jvjțP Gtłj, tKv\_vl wPKb emj, Avevi tKv\_vl Dfțqi wqkY| G ețbi cãvb MıQ MRb, Mıgvi, țZj mj, KoB, tgnMıb, tm\_b BZ`w | nwiZ, wPZvevN, fıj ș, Dj ș, evbi, Bmıv, newfbæaițbi cvL, KxUcZ½ cfiwZ cãvb cŃYx|

#### ebR cwițek I Rie%aiPÎ"

AvțMB ejv nțqțQ Avqvt`i t`țk Pri aițbi eb itqțQ| h\_v- cwnno eb, g'vbțMôf eb, mgZj fiigi eb Ges MîgxY eb| cwnno ețb KLbl Rjve×Zv nq bv| KviY, G eb mgZj fiig t\_țK AțbK Dcți Aew`Z| wZbuU cveZ" tRjv, h\_v- ivıvgvU, LvMoiQıno I ev`ievb Ges PÆMîg, K- evRvi, wntj U, nıeMÄ, mbıgMÄ I tgșj fxevRvi tRjvi cwnno GjvKvq cwnno eb t`Lv hvq| Gme GjvKvi gvU tKv\_vl jvjțP Gtłj, tKv\_vl wPKb emj, Avevi tKv\_vl Dfțqi wqkY| vțb vțb K¼iqg I gvtS gvtS ewj qno cv\_i hŃ | Gme GjvKvi cãvb MıQ MRb, Mıgvi, țZj mj, KoB, tgnMıb, tm\_b BZ`w | wPZmıwZmıwZ GjvKvq Rvi aj, wUwıj, eiab I wRj cvl qv hvq| cŃYx`i gța" itqțQ nwiZ, wPZvevN, tgțQvevN, ebıeovj, fıj ș, nwi Y, Dj ș, newfbæaițbi evbi I nbsgvb, B, newfbæaițbi mıv, newfbæcRvızi cvL, KxUcZ½ BZ`w | Gme GjvKvi gvU A`ıq| mgŃcŃ nțZ Gme fiig tek Dcți Aew`Z nı qvq GLvțb cŃıj Z Pvlvev` nq bv| GK mgq Gme GjvKvq mıwZ msL`K cwnno tjvK Qrov tKvțbv tjvKRbl wQj bv ej țj B Pțj | cwnno tjvțKiv Gme GjvKvq wētkl GK c×wZțZ Pvlvev` Kți hvțK SgPvl etj | SgPvl nțjv cwnno GjvKvq MıQcvjv tKțU mıwıqK Pvlvev` thLvțb GKmț½ avb I Ab`ıb" ktm`i exR cțZ t`qv nq| chŃqμtg tmLvțb cŃtg avb I cti Ab`ıb" km" Drcw`Z nq| wKš Rıg AmgZj nı qıi KvițY Ges tmLvțb tmțPi cvb bv\_vKvțZ ewıi I ciB G aițbi Pvlvev` wbfŃkxj | gvUțZ hZw`b DeŃZv vțK ZZw`b GKıU wıw`Ń RıgțZ Pvlvev` Kti | cti cwnnoıv H GjvKv cwi Z`vM Kti bZb tKvțbv GjvKvq hvq Ges GKB c×wZțZ Pvlvev` Kti | AZxțZ cŃq 20 eQi ci ci GKB GjvKvțZ tjvKRb Pvlvev`i Rb" wdți AvmZ Ges GțZ cwnvto bZb Kti MıQcvjv RtbŃ gvUı DeŃZv wdți AvmZ | wKš cwnno GjvKvțZı RbmsL`v` ș ewıi dtj eZŃvțb 3-5 eQıi i gța" B GKB GjvKvțZ tjvKRbțK wdți AvmțZ nț"Q etj B newfbæcwnno MıQ Rbțbıv mșhıM cvț"Q bv Ges GKBMı` msıkŃ cŃYıKș I Zv`i Avevm`j nwițq tdj țQ| dtj Rie%aiPÎ"i G AmıgAm`Zvi KvițY cŃKwZK fvi mıg" webŃ nț"Q | mıv`uŃZK GK mgxŃıvq t`Lv tMțQ, cwnno GjvKvi newfbæMıțQi gța" AšZ 25ıU AvR cŃq wj ș|

wPÎ 48 t cwnno ețbi Dj ș

g`vb#M0F e#bi cãvb Dw`c  
m#wi, tKI ov, KvKiov, ci i,  
evBb, Mivb, ayj, tMI qv,  
tnZvj, tMj cvZv BZ`w` |  
evN, nmi Y, evbi, mvc,  
tgSgmQ cãvb c0Yx |

mgZj figi e#bi gmu  
cãvbZ tj \$ncãvb, GtWj,  
jvj tP I A`h# | G e#bi  
cãvb e#l kuj, Kuvj  
BZ`w` |

evsj vt`tk giaR cwi tek  
tbB | Zte D`Eiv`Atj  
fviZi div`v evtai  
d#j b`b`xi cwbc0m  
AwZgvIvq Ktg hvl qvZ  
wKQyv giaR cwi tek t`Lv  
hvt`Q | GZ`Atj evejv,  
Ltqi, Avg, wj Pz ti BbuP  
cfwZ. fvtjv Rtb# |

m#yie#bi c#jv Ask R#jOB  
tjvbrtj i cwi tek | G  
Qovl wntj tui wPz  
GjvKvq bj LvMovRvZxq  
Nvm Rtb# |

c0KwZKfite Ljybv, ev#MinvU I mvZ`qixvq m#yieb A\_v`# tjvbr cwmbi eb t`Lv hvq | Gme  
e#bi cãvb Dw`c ntjv m#wi, tKI ov, KvKiov, ci i, evBb, Mivb, ayj, tMI qv, tnZvj,  
tMj cvZv BZ`w` | c0Yx` i gta` i tq#Q wexleL`vZ itqj te#zj UvBMvi ev tWvivKvUv evN,  
tg#Qv evN, ebwovj, wPTv nmi Y, eb` i Ki, ARMi, wewfbæait#bi mvc, eb tgviM, wewfbæ  
ait#bi cwiL, tgSgmQ, wewfbæait#bi KxUcZ½ cfwZ. | GQovr gmuLi jeYv³Zvi I ci wfiE Kti  
cUqvLvjx, ei\_bv I ewi kv#j i mgy`ZxieZ#GjvKv, tbvqvLvjx I j`qix#j i mmi XxieZ#  
GjvKv Ges Piv`Aj, P`EM0g I K· evRvti i mgy`ZxieZ#GjvKv Ges Piv`Aj mgt#ni DcKtj  
e`vcK g`vb#M0F ebrqb Kiv ntq#Q | Gme GjvKvi cãvb MwQ ntjv tKI ov I evBb | Gme  
GjvKvi gmu GtWj ev t`vAvka, K`0v³, tjvbr I`qvi h# |

mgZj figi e#bi gta` i tq#Q MvRxcj, Uv#vBj, gqgbmsn, w`bvRcj I isct#j i kvj eb |  
Gme e#bi gmu cãvbZ tj \$ncãvb, GtWj, jvj tP I A`h# | Gme gmu A`wq | Gme A`Atj i  
cãvb e#l ntjv kvj, Kuvj Ges mvt\_ t`Lv hvq nj`yKoB BZ`w` | Gme A`Atj evNWvk,  
tg#QvevN, ebwovj, wkvj, evbi, nbgvb, mRvi# wewfbæait#bi mvc, \_B, wewfbæcRwZi  
cwiL, KxUcZ½ cfwZ. c0Yx t`Lv hvq |

M0gxY eb evsj vt`tki me#B Qwotq AvtQ | M0gxY e#b mvari YZ Avg, Rvg, Kuvj, wj PzKoB,  
wkvj, Zvj, tLRj, bvi tKj, mzwvi, tMj vcRvg, mtd`v, evejv, wRMv, wbg, evka, teZ BZ`w`  
MvQ t`Lv hvq | Gme e#b evNWvk, wkvj, mRvi# M0#MvK#j, ebwovj, tg#QvevN, \_B, wewfbæ  
ait#bi mvc, e# cRwZi cwiL I KxUcZ½ t`Lv hvq |

**giaR cwi tek I Rie%uPT`**

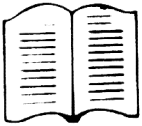
evsj vt`tk giaR cwi tek tbB | Zte evsj vt`tki D`Eiv`Atj fviZ KZR. t`I qv div`v evtai  
d#j b`b`xi cwbc0m AwZgvIvq Ktg hvl qvZ GLv#b KwL KvR e`vnZ nt`Q | ZvQovr gvby  
Rjv wv wntmte e`enit#i Rb` MwQcvjv tKtU tdj vtZ Gme GjvKvi ZvcgrIv ewx tctq#Q Ges  
Avenl qvl μgvMZ giat#gi gtZv ntZ P#jtQ | Zey cKZ. At\_°Gme GjvKvq giaR  
cwi tek wewR Ki#Q br | Kvi Y, GLv#b ewocvtZi cwi giv GLbl eQ#i clq 1500 ug. ug. |  
ivRkivx, bvtUvi, bl Mw beveMÄ, e\_ov tRjvi Ki#Zivq b`xi cw0g fivM Ges w`bvRcj  
tRjvi`wqYvsk Gme GjvKvi A`sf# | GLv#bKvi gmu A`wq | G gmu#Z evejv, Ltqi, Avg,  
wj Pz ti BbuP fvtjv Rtb# | giaR cwi te#ki Dw`c` i cvZv I KvU mvari Y i mvtjv nq | giat#q  
fvg#Z thme Dw`c Rtb# tm\_#tjv ntjv— K`vKUm, evejv, AvK` , d#vbgmv, kZg#j, tLRj,  
wkvj KvUv, SvD, Kiwe cfwZ | GLv#b wewfbæait#bi mvc, \_Bmvc, wkvj, e#bv B#j, tewR,  
ebwovj, wewfbæcRwZi cwiL BZ`w` c0Yx t`Lv hvq |

**RjR cwi tek I Rie%uPT`**

b`xgvZK. evsj vt`tki kZKiv clq 6.5 fivM Rj | m#yie#bi c#jv Ask R#jOB itq#Q  
b`xbvjv | m#yie#b ntjv g`vb#M0F eb | GLv#bKvi cãvb MwQ m#wi, tMI qv, tKI ov, Mivb,  
ayj, ci i, evBb, KvKiov, tnZvj, tMj cvZv BZ`w` | G tjvbr Rtj i cãvb c0Yx nt`Q Kgxv,  
KvtgvU, Wj wcb, wewfbæcRwZi gvQ, wPsw, wewfbæcRwZi RjR mvc, KxUcZ½ BZ`w` |  
tbvbr cwmb Qovl wntj tui wPzGjvKvq wKQyeb itq#Q | tmLvtb cãvbZ bj LvMovRvZxq NvmB  
Rtb# | Zte wKQyvMvQI t`L#Z cvl qv hvq | Gi gta` i tq#Q Rvi#j, wRj, Mvgvi, wUwvj  
BZ`w` |



aiPÎ 49 t tMj cîZv tj vbiRtj i Ab"Zg Diw"e



**mvi gg** evsj v`tk Pvi ai#bi eb i#q#Q| thgb- cvrmo eb, g`vb#M#f eb, mgZj figi eb  
 I M#gxY eb| evsj v`tki ebR cwi#tek w#f#b#ai#bi Diw"e I c#Yxi mgvtek t`Lv hvq|  
 Gme Diw"e I c#Yx ebR cwi#teki Rie%aiPÎ"tk mg# K#i#Q| evsj v`tk gi#R cwi#tek  
 tbB| Zte D#i#v#A#j fvi#Zi divi°v ev#ai dtj b`b`xi c#b#c#v#n AwZgv#vq Ktg hvl qv#Z  
 wKQ#v gi#R cwi#tek t`Lv hv#Q| b`xgvZK.evsj v`tki c#q 6.5% Rj f#M| c#j#v m#j#ie  
 R#o#B i#q#Q Rj R cwi#tek| G Rj R cwi#tek Rie%aiPÎ" AZ"š#mg#|



### cW 4.3 Rxe%eipT" msi qitYi cOqRbxqZv

#### G cW tkfI Avrb –

- Rxe%eipT" msi qitYi cOqRbxqZv Avtj vPbv KiZ cvi teb|



cOZ`K Avem`tj GKiu  
 ubw`e msl`K Rxe Ae`vb  
 Kite| Gi ewZug ntj  
 cOkuZK fvimig` bo nte|  
 GKvitYB Rxe%eipT" i mgSq  
 I msi qitYi AwZ ,iazcy<sup>e</sup>  
 melq|

Rxe%eipT" Ges Rxei Avem`tj i gta` GKiu ubweo m`uK`itqtQ| cOZ`K Avem`tj  
 cOkuZK ubqtg GKiu ubw`e cwi gvY Rxe Ae`vb Kti | mKs` gvbe mgvRi cOqRtb Avgiv  
 hLb tKvtrv GKiu Dv<sup>m</sup> ev cOYxK Zvi cOkuZK cwi tek t`tK tenk cwi gvY tFvM Kti tcluj  
 ZLb tmLvtb cOkuZK fvimig` web` nI qvi m`vebr `vtK| cvW 4.1-G myietbi nwi Y I  
 evfNi msl`vi mvgAm`Zvi K\_v Dtaj L Kiv ntaqQj | A\_v<sup>r</sup> hwi myietb evfNi msl`v Ktg hvq  
 Zte nwi tYi msl`v teto hvte Ges Gi dtj nwi tYi Lv` Pmn`v ugUvtZ thtq MvtQi msl`v  
 Ktg hvte| dtj cOqRbxq msl`K bZb cRtbvi Amefie nte br| Avevi evfNi msl`v teto  
 tMjt nwi tYi msl`v Ktg thZ cvt| Gi dtj ubw`e GjuKvq GKB RvtZi AmsL` MvQ  
 MRvtbvi m`vebr `vKte Ges Giv gvuI LwYR`te`i Rb` tenk gvIvq cOZ`thvMvZi Kite| dtj  
 tKvtrv Pri vMvQ myfite tetP IvZz m`qg nte br| KvtrB Rxe%eipT" i mgSq Ges Gi  
 msi qitYi AZxe ,iazcy<sup>e</sup>melq|

#### ubaj vLZ KvitY Rxe%eipT" i msi qitYi GKvS`cOqRb –

- cwi tetki fvimig` i qitYi Rxe%eipT" i msi qitYi Ab`xKvh<sup>e</sup>
- Dv<sup>m</sup> Avgv`i Lv` , Ilg, evm`vb `Zwi i miAvg, Ryj vobmn ubZ`cOqRbxq Dcv`vb  
 mieivn Kti Ges Rxei evri cwi tek Mto tZvtj | GtKK MvQ t`tK Avgiv GtKK  
 aitbi LwYRc`v`\_oI wFvUngb cvB hv Avgv`i tivMcOZ`tiva qigZv ewxZ mrvqZv  
 Kti | evm`vb `Zwi i Rb`I GKB aitbi KvW e`envi Kiv nq br| tKvtrv KvW e`envi  
 Kiv nq `iRv `Zwi tZ, Avevi tKvtrv KvW AvmevecT `Zwi tZ| KvtrB cOZ`v KvRi  
 Rb` ubw`e KvtrVi e`envi ubw`eZ Kitz cOkuZ`Z cOZ`K Dv<sup>m</sup> i msi qitYi  
 cOqRbxqZv itqtQ| GKBfite cOZ`v cOYxI Avgv`i wvfbvete Dckvi Kti `vtK|  
 KvtrB Gt` i msi qitYi GKvS`cOqRbxq|
- cOZ`K cOYx ev Dv<sup>m</sup> i tivMcOZ`tiva qigZv ev Ab`vb` , Yv`Y GKIKg bq| GKB  
 cRvZi wvfbvete Rxei gta`I `eipT`Zv itqtQ| cRbb cOmuq Gme , Yvej xi  
 msi qitYi Ges e`envi AZ`S`cOqRbxq|
- wtkl wtkl wKOyDv<sup>m</sup> itqtQ hviv wtkl wtkl tKvtrv cOYxi Avem`j wntmte KvR  
 Kti | eb fvg t`tK MvQcvi v tKtU eb DRvo nI qvi `iab eb`RŠ, cvL I KxUcZ`tzi  
 Avem`j web` ntaq hvq| GK mgq evsj vt`tki AtbK etbB evN I AtbK aitbi  
 eb`cOYx me`gvb wqj | eZgvtb tenkifvM etbB Giv vejB| KvtrB Dv<sup>m</sup> I  
 cOYxRMtzi fvimig` i qitYi Rxe%eipT" msi qitYi wtkl cOqRbxqZv itqtQ|
- wvP`I me Dv<sup>m</sup> I cOYx th tKej cOkuZK fvimig` i qitYi, Lv` , wktfi i Kivrgvj ,  
 Ryj vob, AvmevecT`i KvW Ges Ab`vb` Kvtr e`euZ nq Zv bq, Rxe%eipT" cOkuZK  
 tmS`h`oI A`v`vZK DbqtbI ,iazcy<sup>e</sup> fvgKv cvj b Kti | ZvB cvK<sup>e</sup> wPvovLvbv,  
 tevUmbK`vj MvtWb I Ab`vb` wPvovb` b KgRvU I Rxe%eipT" i AZ`S` ,iazcy<sup>e</sup>  
 fvgKv itqtQ|

Dv<sup>m</sup> Avgv`i Lv` , Ilg,  
 evm`vb, Rxei evri cwi tek  
 I Ryj vobmn ubZ`cOqRbxq  
 Dcv`vb mieivn Kti |  
 KvtrB cOkuZ`Z cOZ`K  
 Dv<sup>m</sup> i msi qitYi cOqRb|

Dv<sup>m</sup> I cOYxRMtzi  
 fvimig` i qitYi Rxe%eipT"  
 msi qitYi wtkl  
 cOqRbxqZv itqtQ|

Rxe%eipT" cOkuZK fvimig`  
 i qitYi, Lv` , wktfi i Kivrgvj ,  
 Ryj vob, KvW cFvZ OrovI  
 cOkuZK tmS`h`oI A`v`vZK  
 Dbqtb ,iazcy<sup>e</sup> Ae`vb ivtL|



**mvi gg** Rix%eipT" I Rixei Aveim`tj i gta" ubweo m=úK©i`tqtQ| cŁKuzK ubqtg cŁZ`K  
 Aveim`tj GKUJ ubw` 0 msL`K Rix Ae`vb Kti | Gi e`wZµg ntj cŁKuzK fvi mvg" bó nte/  
 Dm" Avgrt` i Lv", I lgr, eim`vb, Rixei eiBri cwi`tek I Ryj vlbmn ubZ`cŁqvRbxq Dcv`vb  
 mieivn Kti | KvRB cŁKuzZ cŁB mKj Dm" i msi`Y cŁqvRb| Dm" I cŁYRMtzi  
 fvi mvg" i`Yi`Rix%eipT" msi`Yi we`kl cŁqvRbxqZv i`tqtQ| Dm" i gZvB eb`cŁYl  
 Avgrt` i eú DcKvi Kti | Rix%eipT" cŁKuzK fvi mvg" i`Y, Lv", uk`i i KvBryj, Ryj vlb,  
 Avmevec`ti KiV cŁFuz. Qvovl cŁKuzK tms` h` A`%eipT Dbq`tl , iazc`Ae`vb i`tL|



**cūVvĒi gj̄iqb 4.3**

**mūK DĒti i cūk ūK ūPý (✓) ū b|**

- 1| Rxe%eipT̄ i Zv̄` i Avev̄tj i gta` tKgb m̄úK©AvtQ?
  - K) ūbueo m̄úK©
  - L) Aūbueo m̄úK©
  - M) %eiv̄i Zvi m̄úK©
  - N) tKv̄t̄bv m̄úK ūbB
  
- 2| Rxe%eipT̄ msi ųY Kivi cāvb Df̄ik` Kx?
  - K) cūKūZK cūītēki fvimvg` i ųv Kiv
  - L) gūLi LūYR`è` eųx Kiv
  - M) Kv̄Vi Pm̄v̄ ūgUv̄t̄bv
  - N) ūk̄f̄i i Kv̄Egv̄j m̄sM̄h̄ Kiv
  
- 3| eb DRvo n̄tj cūYx̄` i Kx ųūZ nq?
  - K) Lv̄` i Afve nq
  - L) ūePīt̄Yi m̄gm̄v̄ nq
  - M) Avevm̄`j ūebó nq
  - N) cūR̄b̄t̄bi e`v̄Nv̄Z Nt̄U

### cW 4.4 Rxe%wPĪ" webto eb DRĭtoi cĭve eb DRĭtoi, gĭbvKĭj Pĭi I KĭUbkK cĭqĭMĭi cĭve



#### G cW ĩkĭI Avĭrb –

- Rxe%wPĪ" aĭstĭm eb DRĭtoi cĭve wĭj LtZ cĭi teb|
- Rxe%wPĪ" aĭstĭm gĭbvKĭj Pĭi i cĭve Avĭj vPbv KĭtZ cĭi teb|
- Rxe%wPĪ" webto KĭUbkKĭKi ĩwZKĭi K ĩw Kmgĭ ej tZ I wĭj LtZ cĭi teb|



#### eb DRĭtoi I Rxe%wPĪ" i cĭve

- eb AĭbK cĭYxi Aveĭm ĩj | NbemĭZcYevsj vĭtk cĭZĭbqZ eb fĭg tKĭU Aveĭmfĭg I KĭwRĭgĭZ ĭcĭvĭshĭZ Kĭv nĭ"Q| eb DRĭtoi dĭj eĭbi eĭĭĭ Avĭkĭ MĭhYKĭvĭx cĭi cĭwL, KĭUcZĭ AbĭT Pĭj thĭZ eva" nĭ"Q A\_ev Aveĭmfĭgi weeZĭbi dĭj nqĭZv gĭvĭl hĭv"Q| AĭbK cĭYxi eb GĭvKĭv tQto tĭvKĭj tqi Avĭkĭcĭvĭk Pĭj GĭmĭQ| gĭbĭĭ ĭi ĭkKĭvĭi bĭMĭtĭj Gĭm covq gĭbĭy Zĭv`i aĭsm KĭtQ| tKĭvĭv tKĭvĭv cĭYxi Pĭgov ev nĭo t\_ĭK gĭ-evb `ĕw" evbĭvĭv hĭq weavq Zĭv`i tgĭi Pĭgov tbqv nĭ"Q | eb DRĭtoi dĭj Rxe%wPĪ" gĭ-Z G aĭĭbi weeZĭb NUĭQ|
- cĭvĭwĭo Aĭĭtĭj GLbĭl tenkĭ fĭvM tĭvKRbĭK tĭvMeĭj vB t\_ĭK gĭvĭ cĭvĭl qĭi Rb" tĭFIR Dĭw"ĭ i ĭci ĭb fĭP KĭtZ nq| eb DRĭtoi dĭj ĭkĭi KĭvĭLbvĭi Kĭvĭgĭvĭj ĭB th tKej Afve nĭ"Q Zv bq, cĭvĭwĭo Aĭĭtĭj emevĭKĭvĭx tĭvKRĭbi Rb" tĭFIR Dĭw"ĭ I `j ĩ nĭq cĭtoĭQ|
- eb DRĭtoi dĭj cĭiĭteĭki fĭvĭmĭg" bĭo nĭ"Q | evZĭvĭm `ĭYĭi cĭiĭgĭvĭ wĭb wĭb evĭcĭv"Q| Gĭ dĭj cĭĭKĭwZK ĭbqĭg thme Dĭw"ĭ ev cĭYxi thLĭvĭb th msLĭvĭq \_vKĭi K\_v Zv \_vKĭtZ cĭiĭQ bv| dĭj BĭKĭvĭmĭt\_ĭg Amĭvĭgĭm"Zv t`Lv wĭt"Q Ges Dĭw"ĭ I cĭYxi Dfĭtqi AvĭZB msKĭtĭUi gĭLĭvĭgĭ nĭq covQ|

eb eb cĭYxi Aveĭm ĩj ĭKĭS Aveĭmfĭg I Kĭw.Rĭgi Rb" tKĭU DRĭtoi Kĭvĭ eZĭgĭvĭb Rxe%wPĪ" ŭgKĭi mĭgĭab nĭq cĭtoĭQ|

eb DRĭtoi dĭj cĭiĭteĭki fĭvĭmĭg" bĭo nĭ"Q |

gĭbvKĭj Pĭi nĭj v Kĭwĭgĭfĭte mĭp GKB cĭRĭwZĭ Dĭw"ĭ, thgb- ĩm\_b Ōvĭv %Zĭwĭ eb| G aĭĭbi eb e`e`ĭcbvĭi ĭK t\_ĭK mnR ĭKĭS Rxe%wPĪ" i Rb" AbĭĭcĭvĭhĭMĭx| gĭbvKĭj Pĭi i dĭj gĭwU Zĭv DePZv kĭvĭ nĭwĭtĭq tĭdĭj I Rxe%wPĪ" Gĭ cĭve cĭto|

#### gĭbvKĭj Pĭi I Rxe%wPĪ"

gĭbvKĭj Pĭi nĭj v gĭbĭĭ ĭ Ōvĭv Kĭwĭgĭfĭte mĭp GKB cĭRĭwZĭ Dĭw"ĭ Ōvĭv %Zĭwĭ eb| evsj vĭtk 1871 mĭj t\_ĭK ĩm\_b evMĭvb mĭpĭi gĭvĭtĭg gĭbvKĭj Pĭi i Anvefĭe NĭtĭQ| G aĭĭbi eb e`e`ĭcbvĭi ĭK t\_ĭK mnR Ges A\_ĭwZK ĭK t\_ĭK j vĭfRbK| thgb- GKB aĭĭbi MĭQ nĭl qĭtZ cĭZĭwU MĭtQĭ eaĭbi nĭvĭi cĭq GKB, GKB mgĭq Gme MĭQ KZĭ Kĭv hĭq Ges e`e`ĭcbvĭqĭ tKĭvĭv Rĭwĭj Zv \_vĭK bv| mĭvĭvĭYZ eĭb MĭQ j vMĭtĭvĭi mgq Nb Kĭi (2 ŭgĭvĭi `ĭi `ĭi) j vMĭtĭvĭ nq| MĭtQĭ evĭxi mĭt\_ mĭt\_ hLb Avĭj v Ges gĭwĭLi LwYRc`vĭ\_P Rb" cĭZĭthwMZv teĭto hĭq ZLb ga`eZĭP GK mĭmĭ MĭQ tKĭU tĭj v nq| cĭZĭwU MĭtQĭ Mo evĭx tĭvĭvĭgĭvĭ GKBĭKg \_vĭK| ĭKĭS Rxe%wPĪ" i Rb" G aĭĭbi eb tĭgĭUB DcĭhĭMĭx bq| KĭvĭY, hĭw G aĭĭbi eb cĭĭtĭgĭvĭ nq Zĭvĭtĭj eQĭi i tKĭvĭv GK mgĭq me cĭvZv Sĭto ĭMĭtĭq msĭkĭb cĭYxi`i Aveĭm ĩj mĭpYevbĭo nĭq hĭq| Zĭvĭvĭv thme Dĭw"ĭ Ōvĭvĭhĭy `ĭb cĭO` Kĭi Zĭvĭvĭ gĭi hĭq| Gĭvĭv gĭbvKĭj Pĭi i gĭvĭtĭg mĭp evMĭtĭb thĭnZzGKB aĭĭbi MĭQ \_vĭK Ges cĭZĭwU MĭtQĭ Pĭwĭvĭl GKB ĭKĭtĭgi nq ZĭvB gĭwĭLi ĭbĭtĭPi Astĭkl LwYRc`vĭ\_P Rb" cĭZĭthwMZv cĭĭKĭwZK eb t\_ĭK tenkĭ \_vĭK| KĭvĭRB gĭwĭtZ evMĭtĭbi Dĭw"ĭ i Pĭwĭvĭhĭy LwYRc`vĭ\_P NĭUwZĭ t`Lv wĭtZ cĭvĭi | dĭj ĩm gĭwĭtZ cĭvĭvĭq GKB aĭĭbi evMĭvb KĭtZ tĭMĭj MĭtQĭ evĭx ĭwKĭgĭZv nq bv| gĭwĭLi Zĭv DePZv kĭvĭ nĭwĭtĭq tĭdĭj Ges Rxe%wPĪ" Gĭ cĭve cĭiĭj ĭĭĭZ nq|







uPZv evN, nviZ, evbi, nvi Y, wmsn, fij k, j vj cvUv, Uvici, wewfbæaiþbi evNmn eû cRvizi  
`b`cvqx cØYx, cvmL, mvc I Ab`vb` mi xmc iþqþQ| GLvþb th tKej evsjv`tki cKwZtZ  
cvl qv hvq Ggbme cØYx AvþQ Zv bq wv`kx cØYxI iþqþQ| Rxe%ewPÎ" QvovI Avqv`i wkvvi  
Rb` wPvovLvbv GK , iæZçYçFvgKv cvj b Kþi |



uPÎ 51 t PÆMØtgi dtqR tj K wPvovLvbv

weij cRvizi Dv`mc msi qþY  
tevUmbK`vj Mv`Wþbi wv`kl  
Ae`vb iþqþQ| Kv`RB  
wej þcdq Dv`mc mgr- GLvþb  
\_vKþj Zv t`þK exR msMh Kþi  
Dv`mc %ewPÎ" msi qþY Kiv hvq|

**Rxe%ewPÎ" msi qþY tevUmbK`vj Mv`Wþbi figKv**

Rxe%ewPÎ" msi qþY, wv`kl Kþi weij cRvizi Dv`mc msi qþY, tevUmbK`vj Mv`Wþbi wv`kl  
Ae`vb iþqþQ| t`þk cØB hveZxq Dv`mc mvaviYZ tevUmbK`vj Mv`Wþb \_vþK| Dv`mc  
cRvizmgr- msi qþYi Rb` cØqvRbxq cwiþekl tevUmbK`vj Mv`Wþb mþó Kiv nq| ZvQvov



uPÎ 52 t ngicy tevUmbK`vj Mv`Wþb

teUmbK"ij MrtW#b wekji Ab`vb" eú t`tki MvQcuj vl msi qY Kiv nq| ZvB teUmbK"ij MrtW#b wltq Avgiv t`kiet`tki AtbK MvQcuj vl dztjtj i mrt\_ cwiiPZ ntZ cwii | KvtrB wejBclq ev m=úY#ejB Dwtm mg# cãKuzK ebrAtj cvlqv br tMjt I teUmbK"ij MrtW#b \_vKtj Zv t`tk exR msMh Kti Avgiv Dwtm %eipT" msi qY KitZ cwii | AZGe, Dwtm msi qY teUmbK"ij MrtW#b AZ`sl, iazcy#fugKv cij b Kti \_vtK|



**mvi gg** Rxe%eipT" msi qYi Dti`tk" b`vkbvj cvK, #PnoqvLubv, teUmbK"ij MrtW#b BZ`w` mpo Kiv ntqtQ| bvbv Kvty thme Rxe%eipT" uguKi m=lyzb Ges clq wejybi ct\_ tm\_ tjtK ati ivLv hvq tKrtbv GKwU GjvKvtK b`vkbvj cvK#ifcwsZ Kivi gva`tg| #PnoqvLubvi gj- Dti`k" #Ewetbv`b ntj I GLvtb weifbæcYxi Rb" qz`qz` cwitek mpo gva`tg wejBclq cYxmg# msi qY Kiv nq| wej cRwzi Dwtm msi qY teUmbK"ij MrtW#bi wekI Ae`vb itqtQ| KvtrB wejBclq ev wejB Dwtm mg# teUmbK"ij MrtW#b \_vKtj Zv t`tk exR msMh Kti Avgiv Dwtm %eipT" msi qY KitZ cwii |





