jv÷ w\_ª wgwbUm

g~j: cj ‡Wwfm

Abyev`: Avãyj¨vn Avw`j gvngy`

DrmM©

cig k«‡×q AM«R ‡gv. knx`jøvn kvnxb fvB

whwb memgq ‡mœ‡ni evua‡b AvU‡K ‡i‡L‡Qb Avgv‡K

f~wgKv (g~j ‡jLK)

iæ

1960 Gi `k‡Ki ïi“i w`‡Ki K\_v| Avwg QvÎ ZLb| gnvwe‡k¦i ïi“i inm¨ Rvbvi Acwimxg ‡KŠZ~nj mevi ‡Pv‡L-gy‡L| weM e¨vs Z‡Ë¡i Rb¥ ‡mB 1920 Gi `k‡K n‡jI G‡K ¸i“‡Z¡i mv‡\_ ‡bIqv ïi“ 1950 Gi `k‡Ki c‡i| mevB Gi mv‡\_ cwiwPZ \_vK‡jI ZË¡wU ZLbI ‡Zgb ‡Kv‡bv Av¯’v AR©b Ki‡Z cv‡iwb| Iw`‡K k³ c«wZØb&Øx wn‡m‡e Av‡Q w¯’i Ae¯’v ZË¡ (steady-state theory)| gnvwe‡k¦i ‡Kv‡bv ïi“ \_vK‡Z cv‡i ‡m m¤¢vebvB GwU bvKP K‡i w`‡q‡Q| wewfbœ gn‡ji Kv‡Q GwU ZLbI me‡P‡q MnY‡hvM¨ ZË¡| Gici 1965 mv‡j Gj ievU© ‡cbwRqvm I Av‡b©v DBjm‡bi Avwe®‹vi Gj| gnvRvMwZK cUf~wg Zvc wewKiY| `…k¨cU cy‡ivcywi cv‡ë ‡Mj| cwi®‹vifv‡e c«gvwYZ n‡jv, GKwU DËß, Db¥Ë I AvKw¯§K Ae¯’v ‡\_‡K ïi“ gnvwe‡k¦i|

Km‡gvjwR÷iv GB Avwe®‹v‡ii djvdj ‡ei Ki‡Z D‡Vc‡o jvM‡jb| weM e¨vs‡qi 10 jvL eQi c‡i gnvwek¦ KZUv DËß wQj? GK eQi ci? GK ‡m‡KÛ ci? ‡mB c«viw¤¢K Pywj­‡Z ‡Kvb ai‡bi ‡fŠZ c«wµqv msNwUZ n‡qwQj? m…wói ïii ‡Kv‡bv aŸsmve‡kl evwK Av‡Q wK? hv ‡\_‡K Rvbv hv‡e ‡mB mg‡qi Pig Ae¯’vi Lei|

Avgvi fv‡jvg‡Zv g‡b Av‡Q, 1968 mv‡j GKwU ‡jKPvi ïb‡Z wM‡qwQjvg| me‡k‡l Aa¨vcK cUf~wg Zvc wewKi‡Yi (cosmic background heat radiation) Avwe®‹v‡ii Av‡jv‡K weM e¨vs wb‡q K\_v ej‡jb| nvwmgy‡L ej‡jb, ÒweM e¨vs Gi c‡ii c«\_g wZb wgwb‡U msNwUZ wbDwK¬q c«wµqvi Ici wfwË K‡i wKQy ZvwË¡K gnvwe‡k¦i ivmvqwbK Dcv`v‡bi weeiY w`‡q‡Qb|Ó `k©Kiv nvwm‡Z ‡d‡U co‡jb| gnvwe‡k¦i R‡b¥i gvÎ mvgvb¨ mgq c‡ii Ae¯’vi weeiY ‡`Iqvi ‡Póv KZB bv nvm¨Ki! GgbwK mß`k kZ‡Ki hvRK ‡Rgm DkviI Ggb `ytmvnm K‡ibwb| A\_P wZwbB wKš‘ evB‡e‡ji µgvbycywÄi Ici wfwË K‡i `vwe K‡iwQ‡jb, 4004 L…óc~e© mv‡ji 23 A‡±vei Zvwi‡L m…wó n‡qwQj gnvwe‡k¦i| c«\_g wZb wgwb‡Ui NUbv c«ev‡ni wbLyuZ eY©bv wKš‘ wZwbI w`‡Z ‡Póv K‡ibwb|

wKš‘ gnvRvMwZK Zvc wewKiY Avwe®‹v‡ii gvÎ GK `k‡Ki g‡a¨B cv‡ë ‡Mj weÁv‡bi MwZ | c«\_g wZb wgwbU QvÎ‡`iI g‡bv‡hvM ‡K‡o wbj| eB ‡jLv n‡Z jvMj| 1977 mv‡j A¨v‡gwiKvb c`v\_©we` I Km‡gvjwR÷ w÷‡fb DBbevM© wjL‡jb GKwU ‡e÷ ‡mjvi eB| wk‡ivbvg `¨ dv÷© w\_« wgwbUm ev c«\_g wZb wgwbU| Rbwc«q weÁvb c«Kvkbvi RM‡Z GwU bZyb avivi c«eZ©b K‡i| ‡jLK wek¦weL¨vZ GKRb cwÊZ| weM e¨vs‡qi wVK c‡ii c«wµqv¸‡jv mvaviY cvV‡Ki R‡b¨ wj‡L‡Qb we¯—vwiZ I ‡evaMg¨ K‡i|

GK w`‡K D‡ËRK Avwe®‹vi¸‡jv mvaviY gvbyl Av‡¯— Av‡¯— eyS‡Z ïi“ K‡i‡Qb| Iw`‡K weÁvbxivI e‡m ‡bB| AvM«‡ni welq ‡Mj cv‡ë| GK mgq AvM«‡ni welq wQj gnvwe‡k¦i c«viw¤¢K Ae¯’vi ‡LvuR Rvbv| gv‡b R‡b¥i c«vq K‡qK wgwbU c‡ii K\_v| Avi GLb AvM«‡ni welq n‡q ‡M‡j ZviI A‡bK Av‡Mi Lei| R‡b¥i GK ‡m‡K‡Ûi c«vq Amxg fMœvsk mgq c‡ii Ae¯’v| Zvi c«vq GK `kK c‡i we«wUk MvwYwZK c`v\_©we` w÷‡di nwKs wjL‡jb A¨v we«d wn÷wi Ae UvBg| GK ‡m‡K‡Ûi `k ‡KvwU ‡KvwU ‡KvwU ‡KvwU ‡KvwU fv‡Mi GK fvM mg‡q Kx N‡UwQj ZvI ej‡jb wZwb| 1968 mv‡ji ‡mB ‡jKPv‡ii ‡kl nvwmUyKB AvR nvm¨Ki n‡q ‡M‡Q|

weM e¨vs ZË¡ GLb weÁvbx I mvaviY gvby‡li Av¯’v AR©b K‡i ‡d‡j‡Q| d‡j GLb ‡ewk wPš—v-fvebv Pj‡Q gnvwe‡k¦i fwel¨Z wb‡q| gnvwe‡k¦i ïi“i Lei Avgiv fv‡jvB Rvwb| wKš‘ Gi cwiYwZ ‡Kgb n‡e? Gi P~W়vš— cwiYwZ m¤ú‡K© Kx ejv hvq? ‡klI wK n‡e e¨vs (we‡ùviY) ev AvZ©bv‡`i gva¨‡g? ev Av‡`Š wK Gi ‡kl Av‡Q? Avgv‡`iB ev Kx n‡e? Avgiv ev Avgv‡`i c‡ii c«Rb¥ wK wPiKvj wU‡K \_vK‡e? hw`Iev ‡mUv nq i³-gvs‡mi Mov ev ‡iv‡evwUK kixi|

welq¸‡jv wb‡q ‡KŠZ~njx bv n‡qI Dcvq ‡bB| hw`I c…w\_exi ‡kl GLbI `~‡i Av‡Q e‡jB g‡b n‡”Q| eZ©gv‡b gvbe-m…ó bvbv mgm¨vq RR©wiZ c…w\_ex‡Z Av‡M Avgiv wbQK c…w\_ex‡Z wU‡K \_vKvi msM«vg wb‡q wPš—v KiZvg| GLb Ny‡i ‡M‡Q ‡m wPš—vi ‡gvo| Avgv‡`i‡K GLb Avgv‡`i Aw¯—‡Zi gnvRvMwZK w`K wb‡q fve‡Z n‡”Q| `¨ jv÷ w\_« wgwbUm eB‡q eje fwel¨Z gnvwe‡k¦i Mí| weL¨vZ wKQy c`v\_©we` I Km‡gvjwR÷‡`i me©‡kl wPš—vi Av‡jv‡K me‡P‡q ‡miv AbygvbUyKyB Avgiv Zy‡j aie| GUv Kíbvwbfi« n‡e bv| mwZ¨ ej‡Z, fwel¨‡Z bwRiwenxb A‡bK wKQyB NU‡Z cv‡i| wKš‘ fy‡j ‡M‡j Pj‡e bv, ‡hUv GKevi Aw¯—‡Z¡ Avm‡Z cv‡i, ‡mUv Aw¯—Z¡ nviv‡ZI cv‡i|

G eBwU mvaviY cvV‡Ki R‡b¨ ‡jLv| weÁvb ev MwY‡Zi ‡Kv‡bv c~e© Ávb bv \_vK‡jI Pj‡e| Z‡e, gv‡Sgv‡SB Avgv‡K A‡bK eo ev A‡bK ‡QvU msL¨v wb‡q K\_v ej‡Z n‡e| G ‡¶‡Î 10 Gi NvZ (cvIqvi) wfwËK msw¶ß MvwYwZK c«ZxK e¨envi Ki‡j myweav n‡e| ‡hgb, `k nvRvi ‡KvwU‡K wjL‡Z ‡M‡j 100,000,000,000 wjL‡Z nq| GUv AmyweavRbK| GLv‡b 1 Gi c‡i 11wU k~b¨ Av‡Q| d‡j, Avgiv G‡K 1011 ev 10 Gi 11Zg NvZ AvKv‡i wjL‡Z cvwi| GKBfv‡e `k j¶ n‡jv 106, GK j¶ ‡KvwU n‡jv 1012 BZ¨vw`| Z‡e g‡b ivL‡Z n‡e, GB c«Zx‡Ki gva¨‡g msL¨v¸‡jvi e…w×i nvi mivmwi ‡evSv KwVb| 1012 msL¨vwU 1010 Gi GKk ¸Y| c«vq GKB g‡b n‡jI cv\_©K¨Uv wKš‘ wekvj| 10 Gi cvIqvi FYvZ¥K ewm‡q Avevi Lye ‡QvU msL¨v‡`i‡KI c«Kvk Kiv hvq| ‡hgb, GKk ‡KvwUi GK fvM ev 1/1,000,000,000 ‡K 10-9 (‡Ub Uy `¨ cvIqvi gvBbvm bvBb) ‡jLv hvq| KviY, fMœvs‡ki n‡i 1 Gi c‡i 9wU k~b¨ Av‡Q|

‡kl‡gk cvVK‡K GKUv K\_v e‡j ivwL| ¯^vfvweKfv‡eB eBwUi A‡bKUvB Abygvb wbfi«| n¨vu, eB‡qi AwaKvsk K\_vB eZ©gvb weÁv‡bi ‡miv Z‡\_¨i Av‡jv‡KB ejv n‡q‡Q| wKš‘ Gic‡iI fwel¨‡`i c~e©vfvm Ab¨vb¨ ‰eÁvwbK Z‡\_¨i mgvb gh©v`v ‡c‡Z cv‡i bv| ZeyI gnvwe‡k¦i P~W়vš— cwiYwZ wb‡q Abygvb Kivi ‡jvf mvgjv‡bv m¤¢e bq| GB ‡Lvjv g‡bi Av‡jv‡KB eBwU ‡jLv| ‰eÁvwbKfv‡e G K\_v¸‡jv ‡gvUvgywU ¯^xK…Z ‡h weM e¨vs Gi gva¨‡g gnvwe‡k¦i ïi“ n‡q‡Q, GLb GwU kxZj I c«mvwiZ n‡Z n‡Z wecixZ a‡gi« ‡Kv‡bv P~W়vš— Ae¯’vi w`‡K GwM‡q hv‡”Q, A\_ev nqZ Db¥Ëfv‡e msKywPZ n‡q hv‡e| Z‡e ‡h my`xN© mgq wb‡q Avgiv K\_v ejwQ, Zv‡Z ‡Kvb ‡fŠZ c«wµqv ‡h c«fvekvjx f~wgKv ivL‡e Zv Lye ‡ewk wbwðZ K‡i ejvi my‡hvM ‡bB| mvaviY b¶‡Îi cwiYwZ m¤ú‡K© ‡R¨vwZwe©Ávbx‡`i aviYv ‡gvUvgywU cwi®‹vi| wbDU«b b¶Î I e­¨vK ‡nv‡ji ‡gŠwjK ‰ewkó¨ m¤ú‡K©I Zvu‡`i aviYv w`b w`b mg…× n‡”Q| wKš‘ hw` gnvwek¦ AviI j¶ ‡KvwU eQi ev ZviI ‡ewk mgq wU‡K \_v‡K, Zvn‡j G‡Z Ggb ‡Kv‡bv m~² ‡fŠZ c«wZwµqv NU‡ZI cv‡i, hv m¤ú‡K© Avgv‡`i Abygvb Kiv Qvov wKQy Kivi ‡bB| GK mgq nqZ ‡mUvB n‡e ¸i“Z¡c~Y© c«wZwµqv|

c«K…wZ m¤ú‡K© Avgv‡`i Ávb wKš‘ Am¤ú~Y©| d‡j gnvwe‡k¦i P~W়vš— cwiYwZ Rvbvi ‡Póv I Abygvb Kivi Dcvq Av‡Q GKwUB| Avgv‡`i nv‡Z ‡hme ZË¡ Av‡Q ‡m¸‡jv‡K Kv‡R jvwM‡qB hyw³wfwËK ‡Kv‡bv wm×v‡š— ‡cŠuQ‡Z n‡e| wKš‘ G‡ZI mgm¨v Av‡Q| gnvwe‡k¦i cwiYwZ welqK A‡bK¸‡jv Z‡Ë¡iB GLb ch©š— c«v‡qvwMK cix¶v nqwb| Ggb wKQy wel‡qI Av‡jvPbv K‡iwQ ‡h¸‡jv wb‡q ZvwË¡Kiv Lye Avkvev`x, wKš‘ GLbI Zvi c«gvY ‡g‡jwb| ‡hgb, gnvKl© Zi½ wbM©gb1, ‡c«vUb ¶q (proton decay) I e­¨vK ‡nvj ‡iwWq¨vÝ| Avevi GKBfv‡e Ggb ‡Kv‡bv ‡fŠZ c«wµqvI wbðqB \_vK‡e hv Avgiv GLb G‡Kev‡iB Rvwb bv| nqZ ‡mUv G eB‡qi K\_v¸‡jv‡K eûjvs‡k cv‡ë ‡`‡e|

gnvwe‡k¦ e…w×gvb c«vYxi m¤¢ve¨ Kvh©µ‡gi K\_v fve‡j GB AwbðqZvB AviI eo n‡q ‡`Lv ‡`q| Gev‡i Avgiv weÁvb KíKvwnwbi RM‡Z c«‡ek K‡i ‡d‡jwQ| ZeyI GgbUv‡Zv n‡ZB cv‡i ‡h Kv‡ji AveZ©‡b GK mgq RxweZ c«vYxiv ‡fŠZ wm‡÷‡gi AvPiY µ‡gB eo cwim‡i D‡j­L‡hvM¨ iKg cwieZ©b K‡i ‡djj| gnvwe‡k¦i c«vY m¤ú‡K©I Avwg Av‡jvPbv K‡iwQ| KviY, A‡bK cvVK gnvwe‡k¦i cwiYwZ Rvb‡Z Pvb g~jZ gvbyl ev Zvi cieZ©x c«R‡b¥i cwiYwZ Rvbvi R‡b¨B| Z‡e g‡b ivL‡Z n‡e gvby‡li ‡PZbvi c«K…wZ m¤ú‡K© GLbI weÁvbxiv mwVK K‡i wKQyB Rv‡bb bv| GUvI Rvbv ‡bB ‡h `~i fwel¨‡Z Aw¯—Z¡ wUwK‡q ivL‡Z n‡j ‡PZbvi g‡a¨ ‡Kvb ‡Kvb ¸Yvejx¸‡jv \_vKv c«‡qvRb|

eBwUi welqe¯—y m¤ú‡K© mnvqK Av‡jvPbvq Ask ‡bIqvi R‡b¨ K‡qKRb gvbyl‡K ab¨ev` w`‡ZB nq| Guiv n‡jb Rb e¨v‡iv, dª¨vsK wUcjvi, R¨vmb Ugwj, iRvi ‡cb‡ivR I WvbKvb w÷j| wmwi‡Ri m¤úv`K ‡Rwi wjqb cvÊywjwc ¸i“‡Z¡i mv‡\_ c‡o w`‡qwQ‡jb| GR‡b¨ Zvu‡KI ab¨ev`| P~W়vš— cvÊywjwc‡Z KvR Kivi R‡b¨ m¨viv wjwcbKU‡KI ab¨ev`|

Abyev`‡Ki ‡bvU:

1. 2016 mv‡ji ‡de«yqvwi gv‡m G Zi½ cvIqvi ‡NvlYv ‡`Iqv nq| Aek¨ cvIqv wM‡qwQj Av‡Mi eQ‡ii A‡±ve‡iB| d‡j eBwUi ¸i“Z¡ evoj ejv P‡j|

Abyev`‡Ki f~wgKv

gnvwek¦ wb‡q me‡P‡q eo `ywU c«‡kœi GKwU gnvwe‡k¦i fwel¨r| Av‡iKwU ‡Zv RvbvB| gnvwe‡k¦i AZxZ| gv‡b Kxfv‡e Rb¥ n‡qwQj gnvwe‡k¦i| GB `y‡Uv c«‡kœi DËi ‡c‡jB cy‡iv gnvwe‡k¦i BwZnvm Rvbv nq| gnvwe‡k¦i AZxZ wb‡q ‡bv‡ejRqx c`v\_©we` w÷‡fb DBbevM© wj‡L‡Qb KvjRqx eB `¨ dv÷© w\_« wgwbUm| GB eBwUi bvg `¨ jv÷ w\_« wgwbUm| ejvB evûj¨, bvgwU h‡\_ó mv\_©K n‡q‡Q| `¨ jv÷ w\_« wgwbUm eBwU beŸB‡qi `k‡K ‡jLv| eZ©gvb mg‡qi Av‡jv‡K ZvB G‡K wKQyUv ‡m‡K‡j g‡b nIqv ¯^vfvweK|

eBwU ‡jLvi c‡i wKQy hyMvš—Kvix Avwe®‹vi N‡U‡Q ‡R¨vwZwe©`¨vq| eBwUi Av‡jvP¨ wel‡qi mv‡\_ c«vmw½K GKwU Avwe®‹vi n‡jv 1998 mv‡ji gnvwe‡k¦i Z¡wiZ c«mviY| Gi gva¨‡g Rvbv ‡Mj, `~‡ii Qvqvc\_iv ‡Kv‡bv ch©‡e¶K ‡\_‡K hZ `~‡i mi‡Q ZZB Zv‡`i `~‡i mivi ‡eM evo‡Q|

G Avwe®‹v‡ii gva¨‡g gnvwe‡k¦i m¤¢ve¨ fwel¨r m¤ú‡K© aviYvq wKQy cwieZ©b Av‡m| Gi d‡j eB‡qi Aí wKQy Z\_¨ AvcvZ`…wó‡Z ‡m‡K‡j n‡q ‡M‡Q| Z‡e cy‡ivcywi ‡m‡K‡j nqwb| eBwUi ‡k‡li w`‡K gnvm‡¼vPb wb‡q Av‡jvPbv Kiv n‡q‡Q| eZ©gvb Ávb ej‡Q, gnvwek¦ Avevi ¸wU‡q hv‡e ‡m m¤¢vebv Kg| Z‡e NU‡eB bv GgbUv ejv m¤¢e bv| d‡j, eBwUi H Av‡jvPbv A\_©nxb bq| ZvQvov gnvm‡¼vPb G‡Kev‡i evwZj n‡q ‡M‡jI Gi m¤¢ve¨ ‡KŠkj I djvdj Kx n‡e ‡mUv wb‡q eBwUi Av‡jvPbv h‡\_ó ‡KŠZ~n‡jvÏxcK|

eBwUi Av‡jvP¨ welq‡K hy‡Mvc‡hvMx K‡i Zyj‡Z eBwUi cwiwkó As‡k gnvwe‡k¦i m¤¢ve¨ cwiYwZ¸‡jv welqK GKwU ‡jLv hy³ K‡iwQ| hy³ K‡iwQ weÁvb, ‰eÁvwbK ZË¡ weÁvb Kxfv‡e KvR K‡i Zv wb‡q GKwU AskI| weÁv‡bi mwVK iƒc m¤ú‡K© Avgv‡`i ‡`‡k fyj aviYv mwVK aviYvi ‡P‡q ‡ewk ‡`Lv hvq| G Kvi‡Y Avgiv A‡bKmgq bvbvb welq wb‡q A‡nZyK Z‡K© Rwo‡q wewfbœ mvgvwRK mgm¨vi Ask n‡q cwo|

AZ¨š— mZK© \_vKv m‡Ë¡I eBwU‡Z wKQy ÎywU ‡\_‡K hvIqv Am¤¢e bq| ‡h‡Kv‡bv ai‡bi ÎywU ‡Pv‡L co‡j B‡gB‡ji gva¨‡g Avgv‡K Rvbv‡j AZ¨š— K…ZÁ \_vKe| ‡Kv‡bv civgk© \_vK‡jI Rvbv‡bvi Aby‡iva iBj|

eBwU ‡jLvi ‡¶‡Î cwiev‡ii m`m¨‡`i, we‡kl K‡i mnawg©bx mvjgv wmwÏKvi AK…wÎg Drmvn I cigv‡ki« Rb¨ Zvu‡`i mevi c«wZ HKvwš—Kfv‡e K…ZÁZv c«Kvk KiwQ| eive‡ii g‡ZvB eBwU c«Kv‡k weÁvbwPš—vi evmvi fvB I iwbi fvB‡qi µgvMZ I wbtmv\_© Drmvn ‡`Iqvi K\_v AvRxeb g‡b \_vK‡e| GRb¨ Zvu‡`i Kv‡Q we‡klfv‡e K…ZÁ| eBwUi c«Kvk Kivi R‡b¨ c«\_gv c«Kvk‡bi c«KvkK I c«Kvkbvi mv‡\_ wewfbœfv‡e RwoZ mevi c«wZI Acwiwmg K…ZÁZv|

gvngy`

08 A‡±vei, 2020

cvebv K¨v‡WU K‡jR

c«\_g Aa¨vq

gnvc«jq

ZvwiL: 21 AvM÷, 2126| gnvc«jq

¯’vb: c…w\_ex|

c…w\_exi bvbv c«v‡š— nZvkvq Av”Qbœ A‡bK¸‡jv gvbyl jyKv‡bvi ‡Póvq e¨¯—| ‡KvwU ‡KvwU gvbyl Avk«qnxb n‡q c‡o‡Q| ‡KD ‡KD cvwj‡q‡Q f~wgi Mfx‡i| Avk«q wb‡q‡Q ¸nv ev Lwbi ‡`qv‡j| ‡KD Avevi mve‡gwi‡b ‡P‡c mvM‡i Wye w`‡q‡Q| ‡KD ‡KD ‡ec‡ivfv‡e Gw`K-‡mw`K ‡QvUvQywU Ki‡Q| Z‡e AwaKvsk gvbylB nZeyw× I welY&Y n‡q e‡m Av‡Q| A‡c¶v Ki‡Q ‡kl ciYwZi R‡b¨|

AvKv‡ki A‡bK DuPy‡Z Av‡jvi GKwU eo ‡iLv ‡`Lv hv‡”Q| ïi“‡Z ïay ‡`Lv wM‡qwQj nvjKv ‡avuqvi gy`y wewKiY| GKw`b ‡mUvB gnvk~‡b¨i ey‡K M‡o Zyjj dyUš— M¨v‡mi c«PÊ NywY©| M¨v‡mi Ic‡ii w`‡K GKwU Kv‡jv, KyrwmZ I fqvbK wRwbm ‡`Lv hv‡”Q| a~g‡KZywUi ¶y`« gv\_v ‡`‡L Gi fqvbK aŸsmvZ¥K ¶gZv AvuuP Kiv KwVb| ‡m‡K‡Û c«vq Pwj­k nvRvi gvBj ‡e‡M GwU ‡a‡q Avm‡Q c…w\_exi w`‡K| c«wZ ‡m‡K‡Û `k gvBj| j¶ ‡KvwU Ub eid I cv\_i k‡ãi mËi ¸Y ‡e‡M c…w\_ex‡Z AvNvZ nvbvi R‡b¨ c«¯—yZ|

‡`Lv I A‡c¶v Kiv Qvov gvby‡li Kivi wKQyB ‡bB| Awbevh© cwiYwZi gy‡L c‡o weÁvbxiv eû Av‡MB ‡Uwj‡¯‹vc ‡\_‡K gyL mwi‡q wb‡q‡Qb| wbi‡e eÜ K‡i w`‡q‡Qb Kw¤úDUvi| `~‡h©v‡Mi mwVK AvPiY GLbI mwVKfv‡e ‡evS hv‡”Q bv| ‡hUyKy Rvbv ‡M‡Q, ‡mUvB GZ fqven ‡h Zv mvaviY gvbyl‡K Rvbv‡bv wVK n‡e bv| ‡Kv‡bv ‡Kv‡bv weÁvbx wU‡K \_vKvi wKQy c~Y©v½ ‡KŠkj ‰Zwi K‡i‡Qb| wb‡R‡`i ‡UKwbK¨vj Ávb Kv‡R jvwM‡q Ab¨‡`i Zyjbvq myweavRbK Ae¯’vq \_vKvi B‡”Q Zv‡`i| ‡KD ‡KD `~‡h©vMwU‡K g‡bv‡hvM w`‡q ch©‡e¶‡Yi ‡PóviZ| ‡kl w`bwU ch©š—I Zvuiv Zvu‡`i mwZ¨Kvi weÁvbxmyjf AvPiY eRvq ivL‡Z Pv‡”Qb| c…w\_exi Mfx‡i ivLv UvBg K¨vcmy‡j cvwV‡q w`‡”Qb ‡m DcvË| D‡Ïk¨, fwel¨Z& eskaiiv hv‡Z ‡mUv Kv‡R jvMv‡Z cv‡ib|

msN‡li« gyn~Z© AviI Nwb‡q Gj| mviv c…w\_exi jvL jvL gvbyl f‡q f‡q Nwoi w`‡K ZvKv‡”Q| ‡kl wZbwU wgwbU|

M«vBÛ wR‡ivi wVK Ic‡i AvKvk we`xY© n‡q ‡Mj| GK nvRvi Nb gvBj cwigvY evqy Qy‡U ‡Mj GKw`‡K| GKwU kn‡ii AvKv‡ii ‡P‡qI ‡ewk cwigvY ‡avuqv KyÊjx cvwK‡q f~wgi w`‡K GwM‡q Avm‡Q| c‡bi ‡m‡KÛ c‡iB AvNvZ nvbj f~c…‡ô| `k nvRvi f~wgK‡¤úi mgvb AvNv‡Z ‡Ku‡c IVj c…w\_ex| ¯’vbvš—wiZ evZv‡mi kK I‡qf D‡o hv‡”Q c…w\_ex c…‡ôi Ici w`‡q| ‡f‡O coj ¯’vcbv¸‡jv| ‡hUvB mvg‡b coj, wbwðý n‡q ‡Mj| msN‡li« ¯’v‡bi Pvicv‡k mgZj f~wg‡Z GKwU e…ËvKvi Zij cvnvo ‰Zwi n‡jv| D”PZv K‡qK gvBj| GK‡kv wgUvi PIov MZ© w`‡q c…w\_exi ‡fZ‡ii e¯—y ‡ewi‡q Avm‡Q| MwjZ cv\_‡ii ‡`qvj ‡XD Zy‡j Qwo‡q co‡Q ax‡i ax‡i| G Zxe« AvNv‡Zi mvg‡b f~c…ô ‡hb mvgvb¨ GKwU K¤^j|

M‡Zi« ‡fZ‡ii j¶ ‡KvwU Ub cv\_i ev®úxf~Z n‡q ‡M‡Q| Zvi ‡P‡q A‡bK ‡ewk wQU‡K Ic‡i D‡V hv‡”Q| wKQy wKQy P‡j hv‡”Q gnvKv‡ki w`‡KI| Gi ‡P‡q ‡ewk cwigv‡Y wbw¶ß n‡”Q Aa©-gnv‡`k GjvKv Ry‡o| Gici cwZZ n‡”Q kZ kZ, GgbwK nvRvi nvRvi gvBj `~‡ii GjvKvq| ‡hLv‡bB Zv co‡Q, NUv‡”Q gvivZ¥K aŸsmhÁ| wKQy wKQy wbw¶ß c`v\_© wM‡q co‡Q mvM‡i| ‡mU ‡\_‡K ïi“ n‡”Q mybvwg| d‡j `~‡h©v‡Mi gvÎv AviI e…w× ‡cj| ay‡jvgq aŸsmve‡k‡li GKwU eo Ask evqygÊ‡j D‡V ‡Mj| m~h© cy‡ivcywi XvKv c‡o ‡Mj| m~‡hi« Av‡jvi gyL ‡`Lv hv‡”Q bv c…w\_exi ‡Kv\_vI ‡\_‡KB| Zvi e`‡j ‡`Lv hv‡”Q kZ ‡KvwU Dévi ‰ckvwPK SjKvwb| Zxe« DËvc cvwV‡q Giv Sj‡m w`‡”Q gvwUi c…w\_ex| KviY wew”Qbœ LÊ¸‡jv gnvk~b¨ ‡\_‡K ‡di wd‡i Avm‡Q evqgÊ‡j|

Dc‡ii `…k¨cUwU GKwU Abygvb| my&BdU UvUj (Swift-Tuttle) bv‡gi GKwU a~g‡KZy 2126 mv‡ji 21 AvM÷ Zvwi‡L c…w\_ex‡Z AvNvZ nvb‡e| hw` ‡mUvB N‡U, ‰ewk¦K `~‡hvM© AeavwiZ| BwZ NU‡e gvby‡liI| 1993 mv‡j G‡K ‡`Lvi c‡i wnmve-wbKvk K‡i ‡`Lv ‡Mj 2126 mv‡j Avm‡jI GKwU msNl© n‡Z hv‡”Q| c‡i ms‡kvwaZ wnmv‡e ‡`Lv hvq, GwU GK mßv‡ni R‡b¨ c…w\_ex‡K wgm Ki‡e| A‡íi Rb¨ evuPv| Avgiv Gi w`K ‡\_‡K wbwð‡š—B \_vK‡Z cvwi| Z‡e wec` ‡h G‡Kev‡iB ‡bB Zv wKš‘ bq| AvR ‡nvK, Kvj ‡nvK, myBdU UvUj ev GiB g‡Zv ‡KD c…w\_ex‡Z AvNvZ nvb‡eB| wn‡me K‡i ‡`Lv ‡M‡Q, Aa©-wK‡jvwgUvi ev ZviI ‡ewk PIov `k nvRvi e¯—yi K¶c\_ c…w\_exi K¶c‡\_i Ici w`‡q ‡M‡Q| wekvj wekvj GB Dc`«c¸‡jvi Rb¥ ‡mŠiRM‡Zi ewnt¯’ kxZj GjvKvq| wKQy wKQy n‡jv a~g‡KZyi aŸsmve‡kl| AvUKv c‡o Av‡Q M«n‡`i gnvKl©xq evua‡b| Ab¨‡`i DrcwË M«nvYy ‡eóbx‡Z (asteroid belt)| RvqMvUv g½j I e…n¯úwZ M«‡ni gvSLv‡b| K¶c‡\_i fvimvg¨nxbZvi Kvi‡Y Giv wbqwgZ ‡mŠiRM‡Z Avmv-hvIqv Ki‡Q| AvKv‡i ‡QvU n‡jI G‡`i c«wZwµqv fq¼i| c…w\_ex I Ab¨ M«n‡`i ¯’vqx wec‡`i KviY|

G e¯—y¸‡jvi g‡a¨ A‡bK¸‡jvB c…w\_exi me¸‡jv wbDwK¬qvi A‡¯¿i ‡P‡qI ‡ewk ¶wZmvab Ki‡Z m¶g| ‡h-‡Kv‡bv mgq ‡Kv‡bv GKwU AvNvZ nvb‡Z cv‡i| ‡mUv gvby‡li R‡b¨ GKwU Lvivc LeiB n‡e| ‡mUv n‡e gvbe BwZnv‡mi GKwU AvKw¯§K I bwRiwenxb c«wZeÜK| wKš‘ c…w\_exi ‡¶‡Î G iKg NUbv ‡gvUvgywU wbqg ‡g‡b P‡j| a~g‡KZy ev M«nvYyi G gvÎvi msNl© M‡o K‡qK wgwjqb1 eQ‡i GKevi N‡U| A‡b‡Ki wek¦vm, G ai‡bi GK ev GKvwaK NUbvi d‡jB mv‡o Qq ‡KvwU eQi Av‡M WvB‡bvmiiv wejyß n‡q wM‡qwQj| c‡ii evi nqZ Avgv‡`i cvjv|

A‡bK ag© I ms¯‹…wZi gvby‡liv A¨vigv‡MWb2 `…pfv‡e wek¦vmx| evB‡e‡ji eyK Ae wiwf‡jkb cy¯—‡K G hy‡× msNwUZ nZvnZ Ges ¶q¶wZi fv‡jv GKwU weeiY ‡`Iqv Av‡Q| ‡mUv G iKg:

Gici Gj we`¨yZ PgK, eR«aŸwb I ¸oyg ¸oyg kã| mv‡\_ GKwU Zxe« f~wgK¤ú| gvbyl c…w\_ex‡Z cv ‡djvi c‡i GZ eo f~wgK¤ú Avi KLbI Avi N‡Uwb| GUv GZB Zxe« wQj| wewfbœ ‡`‡ki kni¸‡jv ‡f‡O coj| Øxc¸‡jv nvwi‡q ‡Mj| ‡`Lv hv‡”Q bv cvnvo¸‡jvI| AvKvk ‡\_‡K GK GKwU GK‡kv cvDÛ3 I‡Rv‡bvi wkjve…wó coj gvby‡li gv\_v Ici| wkjve…wói c«‡Kv‡c gvbyl Ck¦i‡K MvjvMvj Ki‡Z jvMj| c«‡KvcUv Avm‡jB fqven wQj|

Aek¨B c…w\_ex AviI bvbv iKg c«wZK~j NUbvi wkKvi n‡Z cv‡i| wecyj cwigvY e‡ji evua‡b cwie¨ß gnvwe‡k¦ cyuP‡K GKwU e¯—y GB c…w\_ex| GZ wKQyi c‡iI Aš—Z mv‡o wZb k ‡KvwU eQi a‡i Avgv‡`i M«nwU c«vY avi‡Yi Dc‡hvMx wn‡m‡eB Av‡Q| Z‡e M«nwU‡Z Avgv‡`i mvd‡j¨i ‡cQ‡b inm¨ wKš‘ gnvKvkB| ‡mUv A‡bKfv‡eB| wekvj k~b¨Zvi gnvmvM‡i Avgv‡`i ‡mŠiRMZ ¶y`« GKwU mwµq AÂj| Avgv‡`i wbKUZg b¶‡Îi (m~‡hi« c‡i) Ae¯’vb Pvi Av‡jvKel©4 `~‡i| GB `~iZ¡ KZ ‡ewk ‡mUv eyS‡Z n‡j GKwU welq gv\_vq ivL‡Z n‡e| m~h© ‡\_‡K gvÎ mv‡o AvU wgwb‡Ui g‡a¨ Av‡jv bq ‡KvwU wÎk j¶ gvBj c\_ ‡cwi‡q Av‡m| Pvi eQ‡i ‡Zv AwZµg K‡i 20 wU«wjqb (20 j¶ ‡KvwU) gvB‡jiI ‡ewk c\_|

m~h© GKwU Av`k© evgb b¶Î| Ae¯’vb Avgv‡`i AvKvkM½v Qvqvc‡\_i (Milky Way galaxy) GKwU Av`k© AÂ‡j| G Qvqvc‡\_ b¶‡Îi msL¨v c«vq `k nvRvi ‡KvwU| KviI fi m~‡hi« K‡qK kZvsk| KviI KviI fi Avevi m~‡hi« GK k ¸Y| Giv ax‡i ax‡i Qvqvc‡\_i ‡K‡›`«i Pvicv‡k Nyi‡Q| Nyi‡Q Qvqvc‡\_ \_vKv c«Pyi cwigvY M¨vmxq ‡gN I ay‡jv, ARvbv msL¨K a~g‡KZy I M«nvYy, M«n Ges K…òMnŸiI| GB wecyj cwigvY e¯—yi Dcw¯’wZi K\_v ï‡b g‡b n‡Z cv‡i, Qvqvc\_wU eywS wewfbœ e¯—y w`‡q Kvbvq Kvbvq fwZ©| G aviYv fyj| Avm‡j, Qvqvc\_wUi `…k¨gvb Ask c«vq GK jvL Av‡jvKel© cwigvY PIov| AvK…wZ n‡jv \_vjvi g‡Zv| ‡K›`«xq AskUv GKUy ùxZ| G‡K wN‡i Qwo‡q Av‡Q K‡qKwU mwc©j evû| evûM‡jv Mov b¶Î I M¨vmxq c`v\_© Øviv| GgbB GKwU mwc©j evû‡Z i‡q‡Q Avgv‡`i m~h©| ‡K›`« ‡\_‡K GwU Av‡Q c«vq wÎk nvRvi Av‡jvKel© `~‡i|

Avgiv hZ`~i Rvwb, AvKvkM½v Qvqvc‡\_ Lye e¨wZµgag©x wKQyB ‡bB| GKB iKg Av‡iKwU Qvqvc\_ n‡jv A¨v‡Û«vwgWv| GwU Av‡Q Avgv‡`i ‡\_‡K wek jvL Av‡jvKel© `~‡i| AvKv‡ki A¨v‡Û«vwgWv ZvivgÊ‡ji w`‡K Gi Ae¯’vb5| Lvwj ‡Pv‡L G‡K Svcmv ‡Qvc ‡Qvc Av‡jvi g‡Zv g‡b nq| wewjqb wewjqb b¶Î mvwR‡q ‡i‡L‡Q Avgv‡`i `…k¨gvb gnvwek¦| ‡Kv‡bvwU mwc©j, ‡Kv‡bvwU Dce…ËvKvi, ‡Kv‡bvwU Avevi wbw`©ó AvKvinxb| `~i‡Z¡i gvcvKvwV GLv‡b wekvj| kw³kvjx ‡Uwj‡¯‹v‡ci mvnv‡h¨ K‡qK wewjqb Av‡jvKel© `~‡ii Qvqvc\_I Avjv`vfv‡e ‡`Lv m¤¢e| ‡Kv‡bv ‡Kv‡bv ‡¶‡Î ‡Zv G‡`i Av‡jv Avgv‡`i Kv‡Q ‡cŠuQ‡ZB c…w\_exi eq‡mi (mv‡o Pvi‡kv ‡KvwU eQi) ‡P‡q ‡ewk mgq ‡j‡M ‡M‡Q|

GB wekvj dvuKv ¯’v‡bi Dcw¯’wZi A\_© n‡jv gnvKv‡k msN‡li« NUbv Lye ‡ewk N‡U bv| c…w\_exi me‡P‡q eo wec` jywK‡q Av‡Q Gi Av‡kcv‡kB| M«nvYy‡`i K¶c\_ mvaviYZ c…w\_exi KvQvKvwQ \_v‡K bv| G‡`i eo AskB g½j I e…n¯úwZi gvSLv‡bi M«nvYy ‡eóbx‡ZB \_v‡K me mgq| Z‡e e…n¯úwZi wecyj fi M«nvYy‡`i‡K K¶c\_ ‡\_‡K wQU‡K w`‡Z cv‡i| d‡j G‡`i ‡Kv‡bv ‡Kv‡bvwU m~‡hi« w`‡K P‡j Av‡m| ‡W‡K Av‡b c…w\_exi wec`|

Av‡iKwU wec` n‡jv a~g‡KZy| g‡b Kiv nq, `k©bxq G e¯—yM‡jvi DrcwË m~h© ‡\_‡K c«vq GK Av‡jvKel© `~‡ii GKwU ‡gNcy‡Ä| GLv‡b ‡`vl e…n¯úwZi bq| `vqx eis wbKU¯’ b¶Îiv| Qvqvc\_ w¯’i e‡m ‡bB| ïay b¶Î¸‡jvB Qvqvc\_ ‡K›`«‡K c«`w¶Y Ki‡Q bv, Qvqvc\_ wb‡RI ax‡i ax‡i AveZ©b Ki‡Q| m~h© Zvi m½x M«n‡`i‡K wb‡q c«vq 20 ‡KvwU eQ‡i Qvqvc\_‡K cy‡iv GKevi Ny‡i Av‡m| G hvÎvc‡\_ gy‡LvgywL n‡Z nq bvbv iKg AwfÁZvi| wbKUeZ©x b¶Îiv a~g‡KZyi ‡gN‡K bvwo‡q w`‡Z cv‡i| wKQy wKQy a~g‡KZy ZLb wQU‡K Avm‡e m~‡hi« w`‡K| a~g‡KZyiv ‡mŠiRM‡Zi ‡fZ‡ii w`‡K P‡j G‡j m~‡hi« DËv‡c G‡`i DØvqx c`v\_© ev®úxf~Z n‡q hvq| ‡mŠi evqyi av°vq GKwU j¤^v c«evn ‰Zwi nq| GUvB a~g‡KZyi weL¨vZ ‡jR| ‡mŠiRM‡Zi ‡fZ‡ii w`‡K P‡j G‡jI a~g‡KZyi mv‡\_ c…w\_exi msNl© nevi m¤¢vebv Lye Kg| ¶wZ a~g‡KZyI K‡i| Z‡e Zvi ‡`vl wKš‘ c‡o c‡\_ ‡`Lv nIqv b¶‡Îi Ici| Z‡e Avgv‡`i fvM¨ fvj ‡h b¶‡Îi gv‡Si `~iZ¡ A‡bK ‡ewk nIqvq Ggb NUbv Lye ‡ewk N‡U bv|

Qvqvc‡\_i Pvicv‡k Nyi‡Z Nyi‡Z AviI wKQy e¯—y Avgv‡`i w`‡K P‡j Avm‡Z cv‡i| ‡hgb Qvqvc‡\_ ‡f‡m Pjv M¨v‡mi eo eo ‡gNcyÄ| Giv A‡bK wPKb n‡jI ‡mŠievqy‡K gvivZ¥Kfv‡e c«fvweZ Ki‡Z cv‡i| c«fvweZ Ki‡Z cv‡i m~h© ‡\_‡K Avmv Zv‡ci c«evn‡K| AÜKvi gnvk~‡b¨ AviI bvbvb fqbvK wRwbm jywK‡q \_vK‡Z cv‡i| ‡hgb, wew”Qbœ M«n, wbDU«b b¶Î, ev`vgx evgb, K…òMnŸi BZ¨vw`6| Givmn AviI A‡b‡KB Avgv‡`i ARv‡š—B Avgv‡`i w`‡K ‡a‡q Avm‡Z cv‡i| ‡mŠiRM‡Z N‡U ‡h‡Z cv‡i UvjgvUvj Ae¯’v|

wec` AviI fqvenI n‡Z cv‡i| ‡Kv‡bv ‡Kv‡bv ‡R¨vwZwe©` g‡b K‡ib, m~h© nqZ GKwU wØ-Zviv7 RM‡Zi Ask| Avgv‡`i Qvqvc‡\_i AviI eû b¶‡Îi Ae¯’vB Ggb| c«¯—vweZ m~‡hi« GB m½x ZvivwUi bvg ‡b‡gwmm| Z‡e Aw¯—Z¡ \_vK‡jI GUv n‡e A‡bK ‡ewk Aby¾¡j| `~iZ¡ n‡e A‡bK ‡ewk| GRb¨B GLbI G‡K Lyu‡R cvIqv hvqwb| m~‡hi« Pvicv‡ki K¶c‡\_ Gi MwZ axi n‡jI gnvK‡li« gva¨‡g GwU Dcw¯’wZi Rvbvb w`‡Z cv‡i| gv‡S gv‡S `~‡ii a~g‡KZy‡`i MwZc\_ cv‡ë cvwV‡q w`‡Z cv‡i c…w\_exi w`‡K| cwiYwZ‡Z NU‡e G‡Ki ci GK mvsNvwZK msNl©| f~ZvwË¡‡Kiv ‡`‡L‡Qb ‡h wbqwgZ weiwZ‡Z eo AvKv‡ii ev¯—yMZ (ecological) wechi« N‡U| GUv N‡U c«wZ 30 jvL eQi c‡i GKevi|

AviI Mfxifv‡e ch©‡e¶Y K‡i ‡R¨vwZwe©`iv Rvb‡jb, m¤ú~Y© Qvqvc\_ivB msNl© evuav‡Z cv‡i| AvKvkM½vi mv‡\_ Av‡iKwU Qvqvc‡\_i av°v jvMvi m¤¢vebv ‡Kgb? Ggb wKQy c«gvY Aek¨ Av‡QB| b¶Î‡`i `ª“Z PjvPj ‡`‡L ‡evSv hvq, B‡Zvg‡a¨ AvKvkM½v Qvqvc\_ wbKU¯’ Qvqvc\_‡`i mv‡\_ msNl© K‡i b‡oP‡o e‡m‡Q| Z‡e wbKU¯’ `y‡Uv Qvqvc‡\_i msNl© evua‡jB ‡h Qvqvc\_ cwiev‡ii b¶Î‡`iI wech©q NU‡e Ggb ‡Kv‡bv K\_v ‡bB| Qvqvc\_‡`i NbZ¡ GZ Kg ‡h b¶Î‡`i g‡a¨ msNl© bv NwU‡qI Giv G‡K A‡b¨i mv‡\_ wg‡k ‡h‡Z cv‡i|

gnvc«j‡qi Av‡jvPbv AwaKvsk gvbyl‡K gy» K‡i| Zvu‡`i Kv‡Q gnvc«jq gv‡b AvKw¯§K I `…wóKvov Dcv‡q c…w\_exi g…Z¨y| Z‡e ax‡i ax‡i ‡kl n‡q hvIqvi ‡P‡q nVvr g…Z¨yi g‡a¨B wec` Kg| A‡bK¸‡jv Dcv‡q c…w\_ex ax‡i ax‡i emev‡mi Abyc‡hvMx n‡q ‡h‡Z cv‡i| ‡hgb, ev¯—yms¯’v‡bi µgvbebwZ, Rjevqy cwieZ©b ev m~h© ‡\_‡K Avmv Zv‡ci cwigv‡Yi GKUyLvwb ZviZg¨| fO&¸i c…w\_ex‡Z G¸‡jv Avgv‡`i Aw¯—Z¡‡K ûgwKi gy‡L bv ‡dj‡jI Avivg-Av‡q‡ki Rxe‡b BwZ Aek¨B NUv‡e| Z‡e G ai‡bi cwieZ©b NU‡Z nvRvi nvRvi ev GgbwK j¶ j¶ eQiI ‡j‡M hvq| AvaywbK c«hw³i mvnv‡h¨ gvbyl nqZ G¸‡jv‡K c«wZ‡ivaI Ki‡Z cvi‡e| ‡hgb, bZyb K‡i ax‡i ax‡i eid hy‡Mi m~Pbv n‡Z \_vK‡jI Avgv‡`i m¤ú~Y© wech©q NU‡e bv| ‡mUv NUvi Av‡M mewKQy bZyb K‡i ‡X‡j mvRvevi R‡b¨ h‡\_ó mgq nv‡Z \_vK‡e Avgv‡`i| a‡i ‡bIqv hvq ‡h GKwesk kZvãx‡ZI c«hyw³i Af~Zc~e© DbœwZ NU‡Z \_vK‡e| d‡j GUv wek¦vm‡hvM¨ ‡h gvbyl ev Zvi eskaiiv µ‡gB RM‡Zi eo KvVv‡gvi wbqš¿Y wb‡Z cvi‡e| ‡VKv‡Z cvi‡e eo eo me `~‡h©vMI|

ZvwË¡Kfv‡e wK gvbyl wPiKvj ‡eu‡P \_vK‡Z cv‡i? nqZ cv‡i| wKš‘ Avgiv ‡`Le, AgiZ¡ AR©b Kiv ‡mvRv K\_v bq| nqZ ‡mUv Am¤¢eB| gnvwek¦ wb‡RB ‡fŠZ m~‡Îi Aaxb| m~Î¸‡jvB Gi RxebPµ ‡eu‡a w`‡q‡Q: Rb¥, weeZ©b Ges nqZ g…Z¨y| b¶‡Îi wbqwZi mv‡\_ Avgv‡`i wbqwZ Awbevh©fv‡e Rwo‡q Av‡Q|

Abyev`‡Ki ‡bvU:

1. GK wgwjqb mgvb `k j¶

2. evB‡e‡ji wbD ‡U÷v‡g›U Ask Abymv‡i c…w\_exi ‡k‡li w`‡K GKwU eo hy× n‡e| G hy‡×i gq`v‡bi mwZ¨Kvi ev c«ZxwK bvg n‡jv A¨vigv‡MWb|

3. GK cvDÛ mgvb 0.4536 ‡KwR| gv‡b, 100 cvDÛ mgvb c«vq 45 ‡KwR|

4. GK Av‡jvKel© n‡jv Av‡jvi GK eQ‡i AwZµvš— `~iZ¡|

5. A¨v‡Û«vwgWv GKB mv‡\_ GKwU Qvqvc\_ Ges GKwU ZvivgÊ‡ji bvg| gnvKv‡ki wewfbœ e¯—yi Ae¯’vb wbw`©ó Kivi R‡b¨ cy‡iv AvKv‡ki `…k¨gvb ‡MvjK‡K 88wU AÂ‡j fvM Kiv n‡q‡Q| Gi c«wZwU‡K GK GKwU ZvivgÊj (constellation) e‡j|

6. G‡`i cwiPq I cv\_©K¨ ‡`Lyb cwiwkó As‡k|

7. eZ©gv‡b wØ-Zviv ev Wvej ÷vi ejv nq Ggb `y‡Uv Zviv‡K hv‡`i‡K c…w\_ex ‡\_‡K ‡`L‡Z Lye KvQvKvwQ g‡b nq| ev¯—‡e Giv wb‡R‡`i ‡\_‡K A‡bK `~‡i Ae¯’vb K‡iI c…w\_exi AvKv‡k KvQvKvwQ Ae¯’v‡b \_vK‡Z cv‡i| Avevi n‡Z cv‡i Giv G‡K Aci ‡K›`« K‡i Nyi‡Q| GB wØZxq ‡¶‡Î G‡`i‡K evBbvwi ÷vi ev ‡Rvov Zviv e‡j| Av‡jvP¨ As‡k wØ-Zviv ej‡Z Avm‡j ‡RvovZviv‡K ‡evSv‡bv n‡q‡Q|

wØZxq A\_¨vq

gyg~l©y gnvwek¦

1856 mv‡ji K\_v| Rvg©vb c`v\_©we` ‡nig¨vb fb ‡njgnjR weÁv‡bi BwZnv‡mi m¤¢eZ me‡P‡q nZvkvRbK AbygvbwU K‡ib| ‡njgnjR ej‡jb, g…Z¨yi w`‡K GwM‡q P‡j‡Q gnvwek¦| Zvui G Abygv‡bi wfwË n‡jv Z\_vKw\_Z Zvc MwZwe`¨vi wØZxq m~Î| m~ÎwU c«\_g AvZ¥c«Kvk K‡i Ebwesk kZ‡Ki ïi“i w`‡K| D‡Ï‡k¨ wQj Zvc BwÄ‡bi Kg©`¶Zvi (efficiency) msÁv ‡`Iqv| Aí w`‡bi gv\_vqB m~ÎwUi wek¦Rbxb ¸i“Z¡ ¯^xK…wZ ‡c‡q ‡Mj| (A‡bK mgq G‡K mnR K‡i `¨ ‡m‡KÛ j¨ ev wØZxq m~ÎI ejv nq)| c«K…Zc‡K&‡l Av¶wiK A‡\_©B Gi ¸i“Z¡ wek¦Rbxb, Z\_v mgM« gnvwek Ry‡o|

me‡P‡q mnR K\_vq wØZxq m~‡Îi e³e¨ n‡jv, Zvc c«evwnZ nq DËß e¯—y ‡\_‡K kxZj e¯—yi w`‡K| n¨vu, ‡fŠZ cwi‡e‡ki GKwU cwi®‹vi I cwiwPZ ‰ewkó¨ GwU| Lvevi ivbœv Ki‡Z ‡M‡j ev Mwig Kwd VvÊv Ki‡Z ‡M‡jB m~ÎwUi ‡`Lv cvB Avgiv| D”P ZvcgvÎvi GjvKv ‡\_‡K Zvc wbgœ ZvcgvÎvi GjvKvi w`‡K c«evwnZ nq| G‡Z ‡Kv‡bv inm¨ ‡bB| c`v‡\_i« AYyi RM‡Zi K¤ú‡bi gva¨‡g Zvc wb‡Ri ewntc«Kvk NUvq| M¨v‡mi g‡a¨ (‡hgb evqy) AYyiv G‡jv‡g‡jvfv‡e ‡QvUvQywU I msNl© K‡i| GgbwK KwVb c`v‡\_i« g‡a¨I cigvYyiv c«ejfv‡e ¯úw›`Z nq| c`v‡\_i« DòZv hZ ‡ewk n‡e, AYyi K¤ú‡bi c«vej¨I ZZ ‡ewk n‡e| wfbœ ZvcgvÎvi `y‡Uv e¯—y‡K ms¯ú‡k© Avbv n‡j DËß e¯—ywUi AwaKZi c«ej K¤úb Aí mg‡qi g‡a¨B VvÊv e¯—ywU‡Z Qwo‡q co‡e|

wPÎ 2.1

A¨v‡iv Ae UvBg ev mg‡qi Zxi

ei‡di Mjb ‡\_‡K mgq c«ev‡ni w`K m¤ú‡K© GKwU aviYv cvIqv hvq| Zvc Mig cvwb ‡\_‡K VvÊv ei‡di w`‡K c«evwnZ nq| ‡Kv‡bv gywf‡Z hw` Ic‡ii Qwei NUbvwU M, L, K AvKv‡i ‡`Lv‡bv nq, Z‡e fyjwU mn‡RB mevi ‡Pv‡L aiv co‡e| GbU«wc bv‡g GKwU ivwk G Ac«wZmv‡g¨i ‰ewkó¨ c«Kvk K‡i| eid Mj‡j Gi cwigvY ev‡o|

Zv‡ci c«evn ‡h‡nZy GKgyLx, ZvB c«wµqvwU‡Z mg‡qi fvimvg¨ ‡bB| ‡Kv‡bv gywf‡Z hw` ‡`Lv‡bv nq VvÊv e¯—y ‡\_‡K Zvc ¯^Ztù~Z©fv‡e Mig e¯—y‡Z hv‡”Q, ‡mUv LyeB nvm¨Ki n‡e| GKB iKg nvm¨Ki n‡e b`xi cvwb Xvjy ‡e‡q D‡V hv‡”Q ev e…wói ‡dvUv ‡g‡N wM‡q Rgv n‡”Q ‡`Lv‡bvUv| d‡j Avgiv Zvc c«ev‡ni GKwU ‡gŠwjK w`KgywLZv ‡`L‡Z cvw”Q| G‡K A‡bK mgq AZxZ ‡\_‡K fwel¨‡Zi w`‡K wPwýZ GKwU Zx‡ii gva¨‡g ‡`Lv‡bv nq| mg‡qi GB ÔZxiÕ ZvcMZxq c«wµqvi Ac«Z¨vMvgx1 AvPiY c«Kvk K‡i| ‡`ok eQi a‡i welqwU c`v\_©weÁvbx‡`i Awff~Z K‡iQ P‡j‡Q| (‡`Lyb wPÎ 2.1)

ZvcMwZwe`¨vi Ac«Z¨vMvgx ‰ewkó¨ c«Kvk Kivi R‡b¨ GbU«wc ivwkwU Lye ¸i“Z¡c~Y©| G welqwUi ¯^xK…wZ ‡g‡j ‡njgnjR, i“Wjc K¬wmqvm I jW© ‡Kjwf‡bi Kv‡Ri gva¨‡g| GKwU mnR welq wPš—v Kiv hvK| GKwU Dò e¯—y GKwU VvÊv e¯—yi ms¯ú‡k© Av‡Q| G‡¶‡Î Zvc kw³ I ZvcgvÎv AbycvZ‡K GbU«wci msÁv wn‡m‡e wPš—v Kiv hvq| g‡b Ki“b, Aí cwigvY Zvc Dò e¯—ywU ‡\_‡K kxZj e¯—y‡Z c«evwnZ n‡”Q| Dò e¯—ywU wKQy GbU«wc nviv‡e, Avi kxZj e¯—ywU wKQy GbU«wc jvf Ki‡e| GLv‡b Zvc kw³i cwigvY GKB \_vK‡jI ZvcgvÎv wKš‘ wfbœ wQj| AÎGe, Dò e¯—ywU hZUyKy GbU«wc nvwi‡q‡Q, kxZj e¯—ywU Zvi ‡P‡q ‡ewk GbU«wc jvf K‡i‡Q| d‡j wm‡÷‡gi ‡gvU GbU«wc, gv‡b Dò I e¯—y kxZj e¯—yi GbU«wci mgwó ‡e‡o‡Q| Zvi gv‡b, ZvcMwZwe`¨vi wØZxq m~Î‡K Av‡iKfv‡eI ejv hvq| G ai‡bi wm‡÷‡gi GbU«wc KLbI n«vm cv‡e bv| KviY, ‡m‡¶‡Î wKQy cwigvY Zvc‡K ¯^Ztù~Z©fv‡e kxZj e¯—y ‡\_‡K Dò e¯—y‡Z c«evwnZ n‡Z n‡e|2

Av‡iKUy Mfxifv‡e wPš—v Ki‡j m~ÎwU‡K ‡h-‡Kv‡bv e× wm‡÷‡gi R‡b¨ c«‡qvM Kiv hvq: GbU«wc KL‡bvB K‡g bv| aiv hvK wm‡÷‡g Av‡Q GKwU ‡iwd«Rv‡iUi (wd«R)| GwU kxZj e¯—y ‡\_‡K DËß e¯—y‡Z Zvc cvVvq| GbU«wci ‡gvU cwigvY wn‡me Ki‡Z n‡j wd«R Pvjv‡bvi R‡b¨ e¨q nIqv kw³i K\_v gv\_vq ivL‡Z n‡e| GB e¨‡qi c«wµqvi Kvi‡YB wKQy GbU«wc ‡e‡o hv‡e| d‡j memgq GKB NUbv NU‡e| wd«R VvÊv e¯—y‡K Mig K‡i wKQy GbU«wc Kgv‡e wVKB, wKš‘ wd«R Pvjy ivL‡Z wM‡q ‡h cwigvY GbU«wc evo‡e ‡mUv Gi ‡P‡q ‡Xi ‡ewk| c«vK…wZK wm‡÷g¸‡jv‡ZI GKB NUbv N‡U| ‡hgb, wewfbœ Rx‡ei ‡`‡n ev ùwUK ‰Zwii c«wµqv| wm‡÷‡g‡i GK As‡ki GbU«wc K‡g hvq, wKš‘ Aci ‡Kv‡bv As‡k wVKB Zvi ‡P‡q ‡ewk cwigvY GbU«wc ‡e‡o hvq| me wgwj‡q wPš—v Ki‡j GbU«wc KL‡bvB K‡g bv|

mvgwM«Kfv‡e cy‡iv gnvwek¦‡K GKwU GKwU e× wm‡÷g fvev hvq| GB A‡\_© ‡h, Gi ÔevB‡iÕ wKQyB ‡bB| Zvn‡j, ZvcMwZwe`¨vi wØZxq m~Î ¸i“Z¡c~Y© GKwU c~e©vfvm c«`vb K‡i| ‡mwU n‡jv, gnvwe‡k¦i ‡gvU GbU«wc KL‡bvB K‡g bv| Avm‡j GwU Ac«wZ‡iva¨ MwZ‡Z ‡e‡oB P‡j| Avgv‡`i Lye Kv‡QB ‡Zv Gi GKwU bgybv Av‡Q| ejwQ m~‡hi« K\_v| m~h© Aweivg gnvk~‡b¨i kxZj AÂ‡ji w`‡K Zvc Qwo‡q w`‡”Q| Zvc Qwo‡q co‡Q gnvwek¦ Ry‡o| wd‡i Avm‡Q bv KLbI| GKwU ¯úó Ac«Z¨vMvgx c«wµqv|

fvebvi welq n‡jv, GUv wK m¤¢e ‡h gvnwe‡k¦i GbU«wc wPiKvj evo‡ZB \_vK‡e| g‡b Ki“b, Ggb GKwU cvÎ ‡bIqv n‡jv, ‡hLvb ‡\_‡K ‡Kv‡bv Zvc ‡ei n‡Z cv‡i bv, Avevi ‡Kv‡bv Zvc ‡mLv‡b c«‡ekI Ki‡Z cv‡i bv| ai“b ‡mLv‡b GKwU Dò I GKwU kxZj e¯—y‡K cvkvcvwk ivLv n‡jv| Zvc kw³ Dò e¯—y ‡\_‡K kxZj e¯—y‡Z c«evwnZ n‡e| GbU«wc evo‡e| wKš‘ GK ch©v‡q kxZj e¯—ywU Mig n‡e Ges Dò e¯—ywU VvÊv n‡e| d‡j `y‡Uvi ZvcgvÎv mgvb n‡q hv‡e| G Ae¯’vq ‡cŠuQvi ci Avi ‡Kv‡bv Zvc wewbgq n‡e bv| cv‡Îi ‡fZ‡ii wm‡÷g GKwU wbw`©ó ZvcgvÎvq ‡cŠuQ‡e| m‡e©v”P GbU«wci GB myw¯’Z `kv‡K ZvcMZxq mvg¨ve¯’v e‡j| wm‡÷gwU wew”Qbœ \_vK‡j Avi ‡Kv‡bv cwieZ©b nIqvi K\_v bq| wKš‘ e¯—y¸‡jv‡K ‡Kv‡bvfv‡e c«fvweZ Ki‡j wfbœ K\_v| ‡hgb ai“b, cv‡Îi evB‡i ‡\_‡K AviI Zvc mieivn Kiv n‡jv| ‡m‡¶‡Î Zvcxq NUbv AviI NU‡e| Ges GbU«wci m‡e©v”P mxgv Av‡iKUy evo‡e|

gnvwe‡k¦i cwieZ©b m¤ú‡K© ZvcMwZwe`¨vi G m~Î¸‡jvi e³e¨ Kx? m~h© Ges AwaKvsk b¶‡Îi K\_v hw` ewj, Zvc wbM©g‡bi c«wµqv AviI eû wewjqb eQi a‡i Pj‡Z cv‡i| wKš‘ Gi ‡h ‡kl ‡bB Zv bq| GKwU mvaviY b¶‡Îi Zvc Drcbœ nq Gi Af¨š—‡i msNwUZ wbDwK¬qvi c«wµqvi gva¨‡g| c‡i Avgiv ‡`Le, m~‡hi« R¡vjvwb GK mgq dywi‡q hv‡e| Ges mewKQy wVKVvK \_vK‡j GK mgq Gi ZvcgvÎv Gi cvk¦eZ©x gnvk~‡b¨i ZvcgvÎvi mgvb n‡q hv‡e|

‡nig¨vb fb ‡njgnjR Aek¨ wbDwK¬qvi wewµqvi K\_v Rvb‡Zb bv| (m~h© GZ wecyj kw³ Kxfv‡e Drcbœ K‡i Zv Zvui mg‡q ARvbv wQj) Z‡e GKwU mvwe©K bxwZ Zvui Rvbv n‡q wM‡qwQj| ‡mUv n‡jv, gnvwe‡k¦i mKj ‡fŠZ c«wµqv GKwU P~W়vš— ZvcMZxq mvg¨ve¯’v ev m‡e©v”P GbU«wci w`‡K G‡Mv‡”Q| Zvi c‡i Avi ‡Kv‡bv w`b ejvi g‡Zv wKQy NUvi m¤¢vebv ‡bB| c«\_g w`‡Ki we‡klÁiv mvg¨ve¯’vi w`‡Ki GB GKgyLx MwZ‡K bvg ‡`b ÔZvcxq g…Z¨yÕ (heat death)| Z‡e mevB gvb‡Zb ‡h evB‡i ‡\_‡K KvR K‡i ¯^Zš¿ wm‡÷g‡K Avevi mwµq Kiv ‡h‡Z cv‡i| wKš‘ msÁv Abymv‡iB gnvwe‡k¦i ÔevB‡iÕ wKQyB ‡bB| d‡j, mvgwM«K ‡mB Zvcxq g…Z¨y ‡VKv‡bvi g‡Zv wKQyB ‡bB| Awbevh© GK cwiYwZ|

ZvcMwZwe`¨vi m~‡Îi Kvi‡Y gnvwek¦ Ac«wZ‡iva¨fv‡e g…Z¨yi w`‡K GwM‡q hv‡”Q, G Avwe®‹vi eû c«R‡b¥i weÁvbx I `vk©wbK‡K nZvk K‡i‡Q| ‡hgb evU©vÛ iv‡mj Zvui ‡nvqvB AvB A¨vg bU A¨v wµwðqvb eB‡q wb‡Ri welY&Y g‡bvfve Zy‡j ai‡Z wM‡q e‡jb,

Ôhy‡Mi ci hyM a‡i K‡i hvIqv GZ me cwik«g, GZ HKvwš—KZv, GZ me Drmvn-DÏxcbv, gvby‡li eyw×gË¡vi GZ `vi“Y me wb`k©b ‡mŠiRM‡Zi g…Z¨yi mv‡\_ mv‡\_ nvwi‡q hv‡e, Avi gvby‡li mKj AR©b Awbevh©fv‡e gnvwe‡k¦i aŸsmve‡k‡li wb‡P Pvcv co‡e — G K\_v¸‡jvi mv‡\_ mevB GKgZ bv n‡jI Gi wec¶ ‡Kv‡bv `k©b c«‡qvM K‡iI Gi ‡\_‡K evuPvi Avkv Kiv ‡h‡Z cv‡i bv| ïay GB m‡Z¨i Ici fi K‡iB, GB KwVb nZvkvi Ici `…pfv‡e `vuwo‡q ‡\_‡KB AvZ¥v‡K wbivc` Kiv ‡h‡Z cv‡i|Õ

ZvcMwZwe`¨vi wØZxq m~Î I Gi gi‡Yvb¥yL gnvwek¦ welqK djvdj m¤ú‡K© A‡bKB gš—e¨ K‡i‡Qb, gnvwek¦ Avm‡j wbi\_©K wRwbm| Ges P~ovš—fv‡e gvby‡li Aw¯—Z¡I A\_©nxb| GB nZvkve¨ÄK gš—e¨ m¤ú‡K© Avwg c‡ii Aa¨vq¸‡jv‡Z K\_v eje| GB aviYv wVK wK fyj ‡mUvI Av‡jvPbv Kie|

gnvwe‡k¦i P~W়vš— Zvcxq g…Z¨y ‡h ‡Kej fwel¨r gnvwe‡k¦i K\_vB ej‡Q Zv wKš‘ bq| AZx‡Zi IciI f~wgKv Av‡Q Gi| GUv cwi®‹vi ‡h gnvwek¦ hw` GKwU wbw`©ó nv‡i wbt‡kl n‡q ‡h‡Z \_v‡K, Z‡e Gi c‡¶ wPiKvj wU‡K \_vKv Am¤¢e| KviYUv Lye ‡mvRv| gnvwe‡k¦i eqm hw` Amxg nZ, Z‡e GZ w`‡b Gi g…Z¨yB n‡q ‡hZ| ‡h wRwbm wbw`©ó nv‡i ‡kl n‡q ‡h‡\_ \_v‡K ‡mUvi c‡¶ wPiKvj wU‡K \_vKv m¤¢e bq| Ab¨ K\_vq, Aek¨B GKwU wbw`©ó mgq Av‡M gnvwe‡k¦i Rb¥ n‡q‡Q|

GKUv eo welq n‡jv, Ebwesk kZ‡Ki weÁvbxiv GB eo djvdjwU fv‡jvg‡Zv eyS‡Z cv‡ibwb| 1920 Gi `k‡K gnvKvk ch©‡e¶‡Yi gva¨‡g ‡evSv ‡Mj, AvKw¯§K GK gnvwe‡ùvi‡Yi (weM e¨vs) gva¨‡g Rb¥ n‡q‡Q gnvwe‡k¦i| Z‡e ‡`Lv hv‡”Q, ïay ZvcMZxq Kvi‡Yi Ici wfwË K‡iB gnvwe‡k¦i GKwU wbw`©ó mg‡q ïi“i wel‡q Av‡M ‡\_‡KB `…p mg\_©b wQj|

wPÎ 2.2

Ijevm© c¨vivW·

g‡b Ki“b, gnvwek¦ AcwieZ©bkxj| b¶Î¸‡jv wbw`©ó GKwU Mo NbZ¡ wb‡q G‡jv‡g‡jvfv‡e Qwo‡q wQwU‡q Av‡Q| wP‡Î c…w\_exi Pivw`‡Ki GKwU wPKb ‡MvjKxq ‡Lvj‡mi g‡a¨ Aew¯’Z b¶Î‡`i wKQy ‡`Lv‡bv n‡jv| (‡Lvj‡mi evB‡ii b¶Î¸‡jv‡K wPÎ ‡\_‡K ev` ‡`Iqv n‡q‡Q|) G ‡Lvj‡mi b¶Î¸‡jv ‡\_‡K Avmv Av‡jvB c…w\_ex‡Z cwZZ mg¯— bv¶wÎK Av‡jvi ‡hvMvb ‡`q| GKwU wbw`©ó b¶Î ‡\_‡K Avmv Av‡jv Gi ‡Lvj‡mi e¨vmv‡ai« eM© Abycv‡Z K‡g hvq3| Avevi, ‡Lvj‡mi e¨vmva© evovi mv‡\_ mv‡\_ b¶‡Îi msL¨vI ‡e‡o hvq eM© Abycv‡ZB| d‡j `y‡Uv c«fve G‡K Aci‡K evwZj K‡i ‡`q| Zvi gv‡b, ‡Lvj‡mi ‡gvU `xwß4 Gi e¨vmv‡ai« Ici wbfi« K‡i bv| gnvwek¦ Amxg n‡j G‡Z GiKg ‡Lvj‡mi msL¨vI Amxg n‡e| d‡j, c…w\_exi ey‡K G‡m cwZZ Av‡jvi cwigvYI Amxg nevi K\_v|

wKš‘ ev¯—‡e GgbUv ‡`Lv hvqwb e‡j Ebwesk kZ‡Ki ‡R¨vwZwe©`‡`i‡K gnvwek¦ welqK GKwU AvM«‡nvÏxcK c¨vivW· nZeyw×‡Z ‡d‡j ‡`q| Rvg©vb ‡R¨vwZwe©` Ijev‡ii bvg Abymv‡i G‡K IjeviÕm c¨vivW· e‡j WvKv nq| wZwbB c¨vivW·wUi Rb¥ ‡`b| GwU GKwU mij wKš‘ Lye ¸i“Z¡c~Y© c«kœ DÌvcb K‡i| iv‡Zi AvKvk ‡Kb Kv‡jv?

c«\_g `…wó‡Z G‡K ‡QvULv‡Uv mgm¨v g‡b n‡e| iv‡Zi AvKvk Kv‡jv, KviY b¶Îiv Avgv‡`i ‡\_‡K A‡bK A‡bK `~‡i Av‡Q| ZvB Giv Aby¾¡j| (‡`Lyb wPÎ 2.2) wKš‘ ai“b, gnvk~‡b¨i ‡Kv‡bv ‡kl ‡bB| ‡m‡¶‡Î b¶‡Îi msL¨v Amxg n‡Z ‡Zv ‡Kv‡bv evav ‡bB| Amxg msL¨K Ayb¾¡j b¶‡Îi Av‡jv GKÎ Ki‡j ‡Zv c«Pyi Av‡jv nq| gnvk~‡b¨ c«vq mylgfv‡e (mgvb GjvKvq c«vq mgvb msL¨K) web¨¯— Amxg msL¨K AcwieZ©bkxj b¶‡Îi ‡gvU Av‡jvi cwigvY mn‡RB wn‡me K‡i ‡ei Kiv hvq| wecixZ eM©xq m~Î Abymv‡i `~i‡Z¡i mv‡\_ mv‡\_ D¾¡jZv K‡g Av‡m| Gi gv‡b n‡jv, `~iZ¡ wØ¸Y n‡j D¾¡jZv Pvi fv‡Mi GK fvM n‡q hv‡e| `~iZ¡ wZb ¸Y n‡j D¾¡jZv n‡e bq fv‡Mi GK fvM| Gfv‡eB Pj‡Z \_vK‡e| Ab¨ w`‡K hZ `~i ch©š— `…wó ‡`Iqv n‡e, b¶‡Îi msL¨v ZZ evo‡Z \_vK‡e| Ges mvaviY R¨vwgwZi gva¨‡gB ‡`Lv‡bv hvq, GK k Av‡jKel© `~‡i hZ b¶Î Av‡Q, `yB k Av‡jvKel© `~‡i Zvi Pvi ¸Y b¶Î Av‡Q| Avevi, GK k Av‡jKel© `~‡i hZ b¶Î Av‡Q, wZb k Av‡jvKel© `~‡i Av‡Q Zvi bq ¸Y b¶Î| Zvi gv‡b, `~i‡Z¡i e‡Mi« mgvbycv‡Z b¶‡Îi msL¨v ‡e‡o hv‡”Q Avi D¾¡jZv K‡g hv‡”Q| `y‡Uv c«fve G‡K Aci‡K evwZj K‡i w`‡”Q| Zvi A\_© n‡jv, GKwU wbw`©ó `~i‡Z¡ Aew¯’Z me¸‡jv b¶Î ‡\_‡K ‡gvU Kx cwigvY Av‡jv Avm‡e Zv `~i‡Z¡i Ici wbfi«kxj bq| `yB k Av‡jvKel© `~‡ii b¶Îiv hZUyKy Av‡jv ‡`‡e, GK k Av‡jvKe‡li« `~‡ii b¶ÎivI ‡mB GKB cwigvY Av‡jv ‡`‡e|

mgm¨v nq hLb Avgiv m¤¢ve¨ mKj `~i‡Z¡i mKj b¶‡Îi Av‡jv GKÎ Kwi| gnvwe‡k¦i hw` ‡Kv‡bv mxgvbv bv \_v‡K, Zvn‡j ‡Zv g‡b nq c…w\_ex‡Z G‡m cov Av‡jvi ‡gvU cwigv‡Yi ‡Kv‡bv mxgv \_vK‡e bv| AÜKvi nIqv ‡Zv `~‡ii K\_v, iv‡Zi AvKvk Zxe« Av‡jv‡Z Sjgj Kivi K\_v|

b¶Î‡`i mmxg mvB‡Ri K\_v gv\_vq ivL‡j mgm¨vwU AviI eo n‡q ‡`Lv ‡`q| c…w\_ex ‡\_‡K ‡Kv‡bv b¶Î hZ `~‡i \_vK‡e, Gi AvcvZ mvBRI ZZ Kg n‡e| c…w\_ex ‡\_‡K ‡`L‡Z `y‡Uv b¶Î GKB ‡iLv eivei n‡j Kv‡Qi ‡Kv‡bv b¶‡Îi A‡c¶vK…Z `~‡ii b¶Î‡K GwU Avovj K‡i ‡dj‡e| gnvwek¦ Amxg n‡j GUv NU‡e Amxg msL¨K evi| GUv‡K wnmv‡e ai‡j Av‡Mi wm×vš— wKš‘ cv‡ë hv‡e| c…w\_ex‡Z G‡m ‡cŠuQv Av‡jv A‡bK ‡ewk n‡e GUv wVK, wKš‘ ‡mUv Amxg n‡e bv| c…w\_ex ‡mŠic…ô ‡\_‡K c«vq 10 jvL gvBj `~‡i \_vK‡j c…w\_exi AvKv‡k ‡h cwigvY Av‡jv AvmZ GUv c«vq Zvi mgvb n‡e| G iKg Ae¯’vb Aek¨B Lye A¯^w¯—Ki n‡e| e¯—yZ, Zxe« DËv‡c c…w\_ex wb‡g‡lB ev®úxf~Z n‡q ‡hZ|

Amxg gnvwek¦ ‡h Avm‡j GKwU gnvRvMwZK Pywj­i g‡Zv AvPiY Ki‡e G aviYv bZyb wKQy bq| GUv Avi Av‡M Av‡jvwPZ ZvcMZxq mgm¨v Avm‡j GKB K\_v| b¶Îiv gnvk~‡b¨ Zvc I Av‡jv Qwo‡q w`‡”Q| GB wewKiY µgk Rgv n‡”Q gnvk~‡b¨| hw` b¶Î¸‡jv Amxg mgq a‡i R¡‡j, Zvn‡j c«\_g `…wó‡Z g‡b nq wewKi‡Yi Zxe«Zv Amxg n‡e| wKš‘ gnvk~b¨ w`‡q mÂvwjZ nevi mgq wKQy wewKiY Ab¨ b¶‡Îi Ici wM‡q c‡o cybt‡kvwlZ n‡e| (Avgiv ‡h ‡`wL wbKUeZ©x ZviKviv `~‡ii ZviKv‡`i Av‡jv Avovj K‡i iv‡L, GUv ‡mB GKB K\_v|) d‡j wewKi‡Yi Zxe«Zv ‡e‡o Pj‡e| GUv Pj‡e GKwU mvg¨ve¯’v AwR©Z nIqv ch©š—| G Ae¯’vq wbM©gb I ‡kvl‡Yi nvi mgvb n‡q hv‡e| GB ZvcMZxq mvg¨ve¯’v AwR©Z n‡e ZLwb, hLb gnvk~b¨ wewKi‡Yi ZvcgvÎv b¶‡Îi c…ô ZvcgvÎvi mgvb n‡q hv‡e| G ZvcgvÎv n‡jv K‡qK nvRvi wWwM« ‡mjwmqvm| d‡j mgM« gnvwek¦ Zvcxq wewKi‡Y cwic~Y© nIqv DwPZ&| hvi ZvcgvÎv n‡e K‡qK nvRvi wWwM« ‡mjwmqvm| Ges iv‡Zi AvKvk AÜKvi nIqv ‡Zv `~‡ii K\_v, ZvcgvÎvq eis R¡jR¡j Kivi K\_v|

wb‡Ri c¨vivW‡·i mgvavb ‡`Iqvi ‡Póv ‡nbwiL Ijevm© wb‡RI K‡iwQ‡jb| gnvwek¦ wecyj cwigvY aywjKYvq fwZ©| wZwb ej‡jb, G c`v\_©¸‡jv b¶‡Îi ‡ewki fvM Av‡jv ‡kvlY K‡i ‡bq e‡jB (iv‡Zi) AvKvk Kv‡jv nq| `~f©v‡M¨i e¨vcvi n‡jv, Zvui eyw×Uv h‡\_ó m…Rbkxj n‡jI Gi g‡a¨ wQj ‡gŠwjK GKwU ÎywU| aywjKYv¸‡jv ‡klch©š— DËß n‡e Ges R¡j‡Z ïi“ Ki‡e| ‡h cwigvY wewKiY Giv ‡kvlY K‡iwQj, wVK ‡m gvÎvi Zxe«ZvqB R¡j‡e Giv|

Av‡iKwU m¤¢ve¨ mgvavb n‡jv, gnvwe‡k¦i AvKvi Amxg we‡ePbv bv Kiv| g‡b Ki“b b¶‡Îi msL¨v A‡bK ‡ewk n‡jI wbw`©ó| Zvi gv‡b, gnvwe‡k¦ Av‡Q wecyj cwigvY b¶Î Avi Amxg AÜKvi gnvk~b¨| Zvn‡j b¶‡Îi ‡ewkifvM Av‡jvB `~i gnvk~‡b¨ Qwo‡q co‡Z co‡Z nvwi‡q hv‡e| wKš‘ GB mij mgvav‡bI wQj gvivZ¥K fyj| m‡Zi kZ‡K AvBR¨vK wbDUbI G mgm¨vi K\_v Rvb‡Zb| mgm¨vwUi mv‡\_ gnvKl© m~‡Îi m¤úK© Av‡Q| c«wZwU b¶ÎB Aci b¶Î¸‡jv‡K gnvKl© e‡ji gva¨‡g AvKl©Y Ki‡Q| d‡j me¸‡jv b¶Î G‡K Ac‡ii w`‡K avweZ n‡e| ‡kl ch©š— G‡m Ro n‡e Zv‡`i gnvKl© ‡K‡›`«| hw` gnvwe‡k¦i GKwU wbw`©ó ‡K›`« I c«vš— \_v‡K, Z‡e g‡b n‡”Q GwU wb‡Ri IciB ¸wU‡q hv‡e| GKwU Aej¤^bnxb, mmxg I w¯’i gnvwek¦ n‡e Aw¯’wZkxj| gnvK‡li« c«fv‡e ‡kl ch©š— GwU m¼ywPZ n‡q hv‡e|

gnvK‡li« mgm¨vi K\_v c‡i AviI eje| GLv‡b ïay eje wbDUb Kx `vi“Y Dcv‡q G mgm¨vwU `~i Ki‡Z ‡P‡qwQ‡jb| wbDUb ej‡jb, gnvwe‡k¦i c‡¶ Gi gnvKl© ‡K‡›`«i w`‡K ¸wU‡q hvIqv m¤¢e n‡Z n‡j ‡Zv Av‡M Gi gnvKl© ‡K›`« ej‡Z wKQy \_vK‡Z n‡e| gnvwe‡k¦i ‡K›`« I c«vš— bv \_vK‡Z n‡j GKB mv‡\_ `y‡Uv kZ© c~iY n‡Z nq| gnvwek¦‡K Amxg n‡Z n‡e Ges b¶Îiv (M‡o) mylgfv‡e web¨¯— n‡Z n‡e| GKwU b¶Î Gi c«wZ‡ekx b¶Î¸‡jv Øviv me w`K ‡\_‡K AvKl©Y Abyfe Ki‡e| wekvj GK `wo UvbvUvwb ‡Ljvi g‡Zv, ‡hLv‡b `wo mew`‡KB Uvb Abyfe K‡i| mew`‡Ki Uvb¸‡jv M‡o G‡K Aci‡K evwZj K‡i ‡`‡e| d‡j, b¶ÎwUi ‡Kv‡bv boPo n‡e bv|

d‡j, gnvwe‡k¦i ¸wU‡q hvIqvi mgm¨v Gov‡Z wbDU‡bi mgvavb ‡g‡b wb‡Z ‡M‡j AveviI Amxg gnvwe‡k¦i K\_v P‡j Av‡m| Ijev‡mi« c¨vivW·I nvwRi| ‡`Lv hv‡”Q, Avgv‡`i‡K ‡h-‡Kv‡bv GKwU‡K ‡g‡b wb‡ZB n‡e| wKš‘ GKUy ‡cQ‡b wd‡i ZvKv‡j Avgiv GKwU Dcvq Lyu‡R cvB| GLv‡b gnvwek¦‡K Amxg ai‡Z n‡e bv| fyj Abygvb GUv bq ‡h gnvwek¦ ¯’v‡bi w`K w`‡q Amxg, eis fyj Abygvb n‡jv gnvwek¦ mg‡qi w`K w`‡q Amxg| R¡jR¡‡j AvKv‡ki c¨vivW· ‰Zwi n‡q‡Q, KviY ‡R¨vwZwe©`iv a‡i wb‡qwQ‡jb, gnvwek¦ AcwieZ©bkxj| a‡i wb‡qwQ‡jb, b¶Îiv w¯’i Ges G‡`i wewKi‡Yi Zxe«Zvq KLbI fvUv c‡o bv| wKš‘ GLb Avgiv Rvwb, G `y‡Uv AbygvbB fyj wQj| c«\_gZ, gnvwek¦ w¯’i bq, eis c«mvwiZ n‡”Q| GKUy ciB GUv Avwg e¨vL¨v Kie| wØZxqZ, b¶Îiv wPiKvj Av‡jv w`‡q ‡hZ cv‡i bv| GK mgq G‡`i R¡vjvwb dywi‡q hvq| GLb b¶iiv R¡j‡Q| Zvi gv‡b, AZx‡Zi wbw`©ó GKwU mgq Av‡M Zv‡`i Rb¥ n‡qwQj|

gnvwe‡k¦i eqm wbw`©ó n‡j Ijev‡mi« c¨vivW· mgvavb n‡q hvq| ‡mUv ‡Kb nq eyS‡Z n‡j GKwU `~‡ii b¶‡Îi K\_v fveyb| Av‡jv P‡j wbw`©ó MwZ‡Z (k~b¨ gva¨‡g ‡m‡K‡Û 3 jvL wK‡jvwgUvi)| d‡j, Avgiv GKwU b¶Î GLb ‡h Ae¯’vq Av‡Q Avgiv ‡mUv ‡`LwQ bv| ‡`LwQ GwU hLb Av‡jv ‡Q‡owQj ‡m mgqKvi Ae¯’v| ‡hgb ‡e‡UjwRDm (Av`«©v) b¶ÎwU Avgv‡`i ‡\_‡K 650 Av‡jvKel© `~‡i Av‡Q| d‡j G‡K Avgiv GLb ‡hgbUv ‡`LwQ ‡mUv Gi 650 eQi Av‡Mi ‡Pnviv| g‡b Ki“b, gnvwe‡k¦i Rb¥ n‡q‡Q `k wewjqb eQi Av‡M| G‡¶‡Î Avgiv c…w\_ex ‡\_‡K 10 wewjqb Av‡jvKe‡li« ‡P‡q ‡ewk `~‡ii ‡Kv‡bv b¶Î ‡`Le bv| ¯’v‡bi wn‡m‡e gnvwek¦ Amxg n‡ZB cv‡i| wKš‘ Gi eqm hw` wbw`©ó nq, Zvn‡j Avgiv ‡Kv‡bvfv‡eB GKwU wbw`©ó `~i‡Z¡i evB‡i ‡`L‡Z cve bv| d‡j, wbw`©ó eq‡mi Amxg msL¨K b¶‡Îi wgwjZ Av‡jvI wbw`©óB n‡e| Ges Lye m¤¢e ‡mUv n‡e AwZ bMY¨|

ZvcMZxq `…wó‡KvY ‡\_‡KI GKB djvdj cvIqv hvq| gnvk~b¨‡K Zvcxq wewKiY w`‡q cwic~Y© K‡i w`‡q GKB ZvcgvÎvq wb‡q Avmvi R‡b¨ b¶Î‡`i Amxg mg‡qi c«‡qvRb| KviY, gnvwe‡k¦ k~b¨ ¯’v‡bi cwigvY ‡Zv wekvj| ZvcMZxq mvg¨ve¯’vq ‡cŠuQvi R‡b¨ c«‡qvRbxq mgq gnvwe‡k¦i R‡b¥i ci ‡\_‡K GLbI AwZevwnZ nqwb|

me¸‡jv c«gvY ej‡Q GKwU K\_vB| gnvwe‡k¦i eqm wbw`©ó| AZx‡Zi wbw`©ó ‡Kv‡bv mg‡q Gi Rb¥ n‡q‡Q| eZ©gv‡b gnvwek¦ Lye mwµq n‡jI fwel¨‡Zi wbw`©ó ‡Kv‡bv w`b Awbevh©fv‡e G‡K eiY Ki‡Z n‡e Zvcxq g…Z¨y| mv‡\_ mv‡\_ ‰Zwi nq A‡bK¸‡jv c«kœ| KLb NU‡e ‡kl cwiYwZ? ‡mUv ‡Kgb n‡e? ‡mUv wK ax‡i ax‡i n‡e, bvwK nVvr K‡i n‡e? GUv fvev wVK n‡e wK bv ‡h Zvcxq g…Z¨y ej‡Z weÁvbxi GLb hv ‡ev‡Sb, ‡Kv‡bvfv‡e ‡mUv fyj n‡q hv‡e?

Abyev`‡Ki ‡bvU:

1| ‡h c«wµqv ïay GKw`‡KB P‡j, ‡cQb w`‡K wd‡i Av‡m bv, ‡mUvB Ac«Z¨vMvgx c«wµqv|

2| GbU«wc I mg‡qi Zxi wb‡q we¯—vwiZ Rvb‡Z cwiwkó-1 coyb: mgq ‡Kb ‡cQ‡b P‡j bv|

3| G‡K e‡j wecixZ eM©xq m~Î| Gi gv‡b n‡jv GKwU gvb wØ¸Y n‡j Aci gvb Pvi fv‡Mi GK fvM n‡q hv‡e| wZb ¸Y n‡j n‡e bq fv‡Mi GK fvM|

4| ‡Kv‡bv e¯—y ‡\_‡K wbM©Z wewKiY kw³i cwigvY‡K e‡j `xwß| Avevi GKwU e¯—y‡K c…w\_ex‡Z e‡m hZUv D¾¡j ‡`Lvq Zvi bvg AvcvZ D¾¡jZv| AvcvZ D¾¡jZv ‡`‡L e¯—yi c«K…Z `xwß ‡evSv hvq bv| KviY ‡ewk `~‡ii b¶Î ‡\_‡K Avmv Av‡jv wecixZ eM©xq m~‡Îi Kvi‡Y c…w\_exi Kv‡Q Avm‡Z Avm‡Z ¤­vb n‡q hvq| G Kvi‡Y ev¯—‡e ‡ewk D¾¡j (gv‡b `xwß ‡ewk) b¶ÎI c…w\_exi AvKv‡k Kg D¾¡j b¶‡Îi ‡P‡q g…`y ‡`Lv‡Z cv‡i|

Z…Zxq Aa¨vq

c«\_g wZb wgwbU

BwZnvmwe`‡`i g‡Zv Km‡gvjwR÷ivI Rv‡bb, fwel¨Z Rvb‡Z n‡j ZvKv‡Z nq AZx‡Zi w`‡K| Av‡Mi Aa¨v‡q Avwg e¨vL¨v K‡iwQ, Kxfv‡e ZvcMwZwe`¨vi m~Î gnvwe‡k¦i wbw`©ó eq‡mi Bw½Z w`‡”Q| c«vq mKj weÁvbx GKgZ ‡h c«vq `k ‡\_‡K wek wewjqb eQi Av‡M GKwU e…nr we‡ùvi‡Yi (weM e¨vs) gva¨‡g gnvwe‡k¦i Rb¥| Ges gnvwe‡k¦i fwel¨r wbqwZ Kx n‡e ‡mUvI wVK n‡q ‡M‡Q GB NUbvi mv‡\_ mv‡\_| gnvwe‡k¦i ïi“ Kx K‡i n‡qwQj Ges c«v\_wgK `kvq GwU ‡Kvb c«wµqvi ga¨ w`‡q wM‡qwQj ‡mUv ‡R‡b fwel¨r m¤ú‡K© fv‡jv aviYv cvIqv hvq|

cvðvZ¨ ms¯‹…wZi Lye GKwU ‡gŠwjK wek¦vm n‡jv gnvwek¦Uv memgq wQj bv| wM«K `vk©wbKiv wPiš—b gnvwe‡k¦i K\_v ej‡jI cvðv‡Z¨i me¸‡jv eo ag©B e‡j‡Q, Ck¦i AZx‡Zi wbw`©ó ‡Kv‡bv mg‡qB gnvwek¦ ‰Zwi K‡i‡Qb|

gnvwe‡k¦i AvKw¯§K m~Pbv m¤ú‡K© ‰eÁvwbK c«gvY LyeB ‡Rviv‡jv| me‡P‡q c«Z¨¶ c«gvY cvIqv wM‡qwQj `~ieZ©x Qvqvc\_¸‡jv ‡\_‡K Avmv Av‡jvi AvPiY we‡k­lY K‡i| 1920 Gi `k‡K Av‡gwiKvb ‡R¨vwZwe©` GWDBb nvej ch©‡e¶Y K‡i ‡`L‡jb, `~ieZ©x Qvqvc\_¸‡jv ‡\_‡K Avmv Av‡jv wbKUeZ©x‡`i Zyjbvq wKQyUv jvj n‡q hv‡”Q| Zvui Av‡M ‡f‡÷v w¯­dvi bv‡g GKRb ‡beyjv we‡klÁ G wel‡q `xN© w`b a‡i KvR K‡i wM‡qwQ‡jb| KvR Ki‡Zb A¨vwi‡Rvbvi d¬¨vM÷¨vd gvbgw›`‡i (observatory)| Avi nvej e¨envi K‡iwQ‡jb 100 BwÂi gvD›U DBjmb ‡Uwj‡¯‹vc| Gici h‡Zœi mv‡\_ jvj n‡q hvIqvi cwigvY cigwvc Ki‡jb I M«v‡d AvuuK‡jb| ‡`L‡jb, GLv‡b GKwU wbqg KvR Ki‡Q| ‡h Qvqvc\_ Avgv‡`i ‡\_‡K hZ `~‡i Av‡Q, Zv‡K ZZ ‡ewk jvj ‡`Lv‡”Q|

Av‡jvi is Gi Zi½‰`‡Ni« mv‡\_ m¤úwK©Z| mv`v Av‡jvi eY©vwj‡Z bxj is Gi Ae¯’vb ‡QvU Zi½‰`‡Ni« c«v‡š— Avi jvj Gi Ae¯’vb n‡jv j¤^v Zi½‰`‡Ni« c«v‡š—| ‡h‡nZy `~‡ii Qvqvc\_¸‡jvi Av‡jv jvj n‡q hv‡”Q, Zvi gv‡b Zv‡`i Av‡jvi Zi½‰`N¨© ‡Kv‡bvfv‡e j¤^v n‡q hv‡”Q| nvej Lye h‡Zœi mv‡\_ A‡bK¸‡jv Qvqvc‡\_i eY©vwji ‰ewkó¨m~PK ‡iLvi Ae¯’vb wPwýZ K‡i G AvPiY m¤ú‡K© wbwðZ n‡jb| wZwb ej‡jb, Av‡jvK Zi½ eo n‡q hvevi KviY n‡jv gnvwek¦ c«mvwiZ n‡”Q| AwZ ¸i“Z¡c~~Y© G e³‡e¨i gva¨‡gB nvej AvaywbK Km‡gvjwRi m~Pbv Ki‡jb|

m¤cÖmviYkxj gnvwe‡k¦i aviYv A‡bK‡B wVKfv‡e eyS‡Z cv‡ib bv| c…w\_ex ‡\_‡K ‡`L‡j g‡b nq, `~‡ii me Qvqvc\_ Avgv‡`i ‡\_‡K `~‡i m‡i hv‡”Q| wKš‘ Gi gv‡b GB bq ‡h c…w\_ex gnvwe‡k¦i ‡K‡›`« Av‡Q| c«mvi‡Yi c«K…wZ cy‡iv gnvwek¦ Ry‡o (M‡o) GKB iKg| c«wZwU Qvqvc\_, ev Av‡iv fv‡jvfv‡e ej‡j c«wZwU Qvqvc\_cyÄ ev ¯—eK (cluster of galaxies) G‡K Aci ‡\_‡K `~‡i m‡i hv‡”Q| G wPÎ fv‡jvfv‡e ‡evSvi R‡b¨ Qvqvc\_cyÄ¸‡jv gnvk~b¨ w`‡q Qy‡U hv‡”Q — Gfv‡e wPš—v bv K‡i g‡b Ki“b, Qvqvc\_cy‡Äi ga¨eZ©x ¯’vb dy‡j DV‡Q ev j¤^v n‡q hv‡”Q|

¯’vb c«mvwiZ n‡”Q– K\_vwU we¯§qKi ‡kvbv‡Z cv‡i| wKš‘ 1915 mv‡j AvBb÷vBb Zvui mvwe©K Avwc¶KZv ZË¡ c«Kv‡ki ci ‡\_‡KB weÁvbxiv G aviYvi mv‡\_ cwiwPZ| G ZË¡ Abymv‡i gnvKl© Avm‡j ¯’v‡bi (mwVK K‡i ej‡j ¯’vbKv‡ji) eµZv ev weK…wZi ewntc«Kvk| GK A‡\_© ¯’vb n‡jv w¯’wZ¯’vcK| GwU Gi gv‡S Dcw¯’Z c`v‡\_i« gnvKl©xq a‡gi« Ici wfwË K‡i ‡‡euK ‡h‡Z ev c«mvwiZ n‡Z cv‡i| ch©‡e¶Y ‡\_‡K G aviYvi c‡¶ h‡\_ó c«gvY cvIqv wM‡q‡Q|

wPÎ 3.1

m¤cÖmviYkxj gnvwe‡k¦i GKwU GKgvwÎK bgybv| we›`y¸‡jv Øviv Qvqvc\_cyÄ wb‡`©k Kiv n‡”Q| Avi w¯’wZ¯’vcK myZv w`‡q ¯’vb ‡evSv‡bv n‡q‡Q| myZv‡K j¤^v Kiv n‡j we›`y¸‡jv `~‡i m‡i| Gi d‡j myZvi Ici w`‡q Pjgvb ‡Kv‡bv Zi‡½i Zi½‰`N¨©I eo n‡e| nve‡ji Avwe®‹…Z ‡jvwnZ miYI1 Gfv‡eB KvR K‡i|

GKwU mvaviY D`vni‡Yi gva¨‡g m¤cÖmviYkxj ¯’v‡bi ‡gŠwjK aviYv ey‡S ‡bIqv hvq| g‡b Ki“b, GKwU w¯’wZ¯’vcK myZvi Ici A‡bK¸‡jv we›`y Av‡Q (‡`Lyb wPÎ 3.1)| we›`yM‡jv Øviv Qvqvc\_cyÄ wb‡`©k Kiv n‡”Q| Gevi g‡b Ki“b, Avcwb myZvwU‡K `yB c«vš— ‡\_‡K a‡i Uvb w`‡q j¤^v K‡i ‡dj‡jb| c«wZwU we›`y G‡K AciwU ‡\_‡K m‡i hv‡”Q| Avcwb ‡h we›`yi K\_vB wPš—v Ki“b bv ‡Kb, Zvi cv‡ki we›`y¸‡jv‡K `~‡i mi‡Z ‡`Lv hv‡”Q| Zvi Ici c«mviY me w`‡K GKB iKg| ‡Kv‡bv we‡kl ‡K›`« ej‡Z wKQy ‡bB| Aek¨ Avwg GUv‡K GLv‡b ‡hfv‡e Gu‡KwQ, Zv‡Z GKwU we›`y ‡K‡›`« Av‡Q| wKš‘ ‡h c«wµqvq GLv‡b c«mviY NU‡Q, Zvi mv‡\_ GB ‡K›`«xq we›`yi ‡Kv‡bv m¤úK© ‡bB| we›`ymn myZvwU hw` Amxg mvB‡Ri n‡Zv A\_ev myZvwU hw` e…ËvKvi n‡Zv, Z‡e GB ‡K›`«wU Avi \_vK‡Zv bv|

‡h-‡Kv‡bv wbw`©ó we›`y ‡\_‡K wPš—v Ki‡j ‡`Lv hvq, Zvi wbKUZg we›`y¸‡jv c‡ii wbKU we›`y¸‡jv ‡\_‡K A‡a©K MwZ‡Z `~‡i mi‡Q| Ges ZviI c‡ii wbKU we›`yM‡jv ‡\_‡K AviI A‡a©K MwZ‡Z mi‡Q| Gfv‡eB Pj‡Q| GKwU we›`y hZ `~‡i Av‡Q, ‡mwU ZZ `ª“Z m‡i hv‡”Q| G ai‡bi c«mvi‡Yi ‡¶‡Î `~‡i m‡i hvIqv gv‡b mi‡Yi nvi `~i‡Z¡i mgvbycvwZK| m¤úK©Uv ‡ek kw³kvjx| QwewU ‡`‡L Avgiv m¤cÖmviYkxj ¯’v‡b we›`y¸‡jv, gv‡b Qvqvc\_cy‡Äi ga¨eZ©x ¯’v‡b PjvPjiZ Av‡jvK Zi½i K\_v Kíbv Ki‡Z cvwi| ¯’v‡bi mv‡\_ mv‡\_ Zi½I c«mvwiZ n‡”Q| Gi gva¨‡g gnvRvMwZK ‡jvwnZ mi‡Yi e¨vL¨v cvIqv hvq| nvej ‡`L‡jb, ‡jvwnZ mi‡Yi cwigvY `~i‡Z¡i mgvbycvwZK| wVK Qwe‡Z ‡hgbUv ‡`Lv‡bv n‡q‡Q ‡mfv‡e|

gnvwek¦ hw` m¤cÖmviYkxj n‡qB \_v‡K, Zvn‡j AZx‡Z wbðqB GwU AviI Romo wQj| nve‡ji ch©‡e¶Y ‡\_‡K c«mvi‡Yi nvi cwigvc Kiv hvq| cieZ©x‡Z ch©‡e¶‡Yi gvb AviI A‡bK DbœZ nq| nviI ‡ei Kiv nq AviI fv‡jvfv‡e| gnvRvMwZK wPÎwU‡K ‡cQ‡bi w`‡K Pvwj‡q w`‡j Avgiv ‡`Le, ‡Kv‡bv GK `~i AZx‡Z me¸‡jv Qvqvc\_ G‡K Ac‡ii mv‡\_ wg‡k wQj| eZ©gvb mg‡qi c«mvi‡Yi nvi ‡R‡b Avgiv Abygvb Ki‡Z cvwi ‡h GB wgwk«Z Ae¯’v wQj eû wewjqb eQi Av‡M| Z‡e `ywU Kvi‡Y ‡mB mgqwU mwVK K‡i ejv m¤¢e bq| c«\_gZ, wewfbœ Kvi‡Y mwVK K‡i cwigvc Kiv m¤¢e nq bv| bvbvfv‡e fyj n‡qB hvq| Aek¨ AvaywbK ‡Uwj‡¯‹v‡ci gva¨‡g Av‡Mi ‡P‡q ‡ewk msL¨K Qvqvc\_ wb‡q KvR Kiv m¤¢e n‡”Q| wKš‘ Gi c‡iI c«mvi‡Yi nvi GLbI AwbwðZ| ‡mUv Kgc‡¶ `yB ¸Y ch©š— Kg-‡ewk n‡Z cv‡i| GUv GLbI weZ‡Ki« eo GKwU welq| 2

wØZxqZ, gnvwe‡k¦i c«mviY nvi me mgq GKB \_v‡K bv| Gi R‡b¨ `vqx n‡jv gnvKl© ej| gnvKl© ej Qvqvc\_¸‡jvi g‡a¨ ‡Zv KvR K‡iB, GUv KvR K‡i gnvwe‡k¦i me ai‡bi c`v\_© Ges kw³i g‡a¨I| gnvKl© Mvwoi ‡e«B‡Ki g‡Zv AvPiY K‡i| Gi Kvi‡Y Qvqvc\_¸‡jv evB‡ii w`‡K Qy‡U ‡h‡Z evav cvq| d‡j, mg‡qi mv‡\_ mv‡\_ c«mviY nvi ax‡i ax‡i K‡g Av‡m| Zvi gv‡b, AZx‡Z wbðqB gnvwek¦ AviI `ª“Z c«mvwiZ nw”Qj| M«v‡d hw` mg‡qi wecix‡Z gnvwe‡k¦i GKwU Av`k© GjvKvi mvBR ‡`Lv‡bv nq, Zvn‡j 3.2 bs wP‡Îi g‡Zv GKwU mvaviY ‡iLv cvIqv hvq| M«v‡d ‡`Lv hv‡”Q, gnvwe‡k¦i m~Pbv N‡U‡Q Lye wbweo Ae¯’v ‡\_‡K| Zvici ‡\_‡K c«mviY NU‡Q Lye `ª“Z ‡e‡M| Ges mg‡qi mv‡\_ mv‡\_ gnvwe‡k¦i AvqZb hZ ‡e‡o‡Q, c`v‡\_i« NbZ¡I wbqwgZ wfwË‡Z ZZB K‡g ‡M‡Q| ‡iLvwU a‡i ‡cQb w`‡K G‡Mv‡Z G‡Mv‡Z m~Pbv ch©š— ‡M‡j (wP‡Îi 0 Ae¯’v‡b) ‡`Lv hvq, gnvwe‡k¦i ïi“ n‡q‡Q k~b¨ mvBR ‡\_‡K| Avi ‡m mgq c«mviY nvi wQj Amxg| Ab¨ K\_vq, Avgiv AvR ‡hme Qvqvc\_ ‡`LwQ, G¸‡jv ‡h c`v\_© w`‡q ‰Zwi ‡m¸‡jvi m~Pbv n‡q‡Q Zxe« MwZi GKwUgvÎ we›`y ‡\_‡K| Z\_vKw\_Z weM e¨vs Gi GwU GKwU Av`k©vwqZ weeiY|

wPÎ 3.2

wP‡Î ‡hgbUv ‡`Lv‡bv n‡jv A‡bKUv ‡mfv‡eB gnvwe‡k¦i c«mviY nvi mg‡qi mv‡\_ mv‡\_ wbqwgZ wfwË‡Z K‡g Av‡m| mij G bgybvq mg‡qi A‡¶i k~b¨ we›`y‡Z c«mviY nvi Amxg| G we›`ywUB weM e¨vs‡qi mgq wb‡`©k Ki‡Q|

wKš‘ ‡iLvwU‡K ‡cQbUv ch©š— ‡U‡b hvIqvi wPš—vUv KZUyKy ‡hŠw³K? A‡bK Km‡gvjRw÷ g‡b K‡ib, KvRUv wVKB Av‡Q| ‡h‡nZy Avgiv AvkvB KiwQ ‡h gnvwe‡k¦i GKwU ïi“ Av‡Q (Av‡Mi Aa¨v‡q Av‡jvwPZ KviY¸‡jvi mvnv‡h¨) AZGe, wbwðZfv‡e g‡b n‡”Q ‡mUv weM e¨vsB n‡e e‡j| hw` ‡mUvB nq, Zvn‡j ‡iLvi m~Pbv we›`ywU ‡hb‡Zb ‡Kv‡bv we‡ùviY bq| g‡b ivL‡Z n‡e, GLv‡bi M«vdwU‡Z ‡Lv` ¯’v‡biB c«mviY ‡`Lv‡bv n‡q‡Q| AZGe, k~b¨ AvqZ‡bi A\_© ïay GUvB bq ‡h c`v\_© Amxg Nb‡Z¡i ¯’v‡b ¸wU‡q Av‡Q| Gi AviI A\_© n‡jv, ¯’vb ¸wU‡q Av‡Q k~b¨Zvi (nothing) gv‡S| Ab¨ K\_vq, weM e¨vs GKB mv‡\_ ¯’vb Ges c`v\_© I kw³i m~Pbv| GLv‡b GKwU ¸i“Z¡c~Y© K\_v eyS‡Z n‡e| G aviYv Abymv‡i Av‡M ‡\_‡K Ggb ‡Kv‡bv k~b¨¯’vb wQj bv, ‡hLv‡b weM e¨vs N‡UwQj|

mgq m¤ú‡K©I GKB K\_v ejv P‡j| c`v‡\_i« Amxg NbZ¡ Ges ¯’v‡bi Amxg m‡¼vPb mg‡qiI GKwU mxgvbv ‡eu‡a ‡`q| KviY, gnvKl© mgq Ges ¯’vb `y‡Uv‡KB j¤^v K‡i ‡`q| GUvI AvBb÷vB‡bi mvwe©K Av‡cw¶KZv Z‡Ë¡i GKwU djvdj| cix¶vg~jKfv‡e Gi mivmwi c«gvYI cvIqv ‡M‡Q| weM e¨vs‡qi cwi‡ek ej‡Q, ¯’v‡bi weK…wZ wQj Amxg| d‡j weM e¨vs‡qi Av‡Mi mgq (Ges ¯’v‡bi) Gi aviYv GLvb ‡\_‡K cvIqv hv‡”Q bv| d‡j Avgiv wm×vš— wb‡Z eva¨ nw”Q ‡h weM e¨wvsB n‡jv mKj ‡fŠZ wRwbm—¯’vb, Kvj, c`v\_© I kw³i—P~W়vš— m~Pbv| ÒweM e¨vs Gi c~‡e© Kx N‡UwQj?Ó Ggb c«‡kœi ‡Kv‡bv AeKvk ‡bB (hw`I A‡b‡KB c«kœwU K‡i \_v‡Kb)| A\_ev Ggb c«kœ ‡h ‡KbB ev we‡ùviYwU N‡UwQj? c~e© ej‡ZB wKQy wQj bv| Avi ‡hLv‡b mg‡qiB Aw¯—Z¡ ‡bB ‡mLv‡b mvaviY A‡\_© Kvh©KviY ej‡ZI wKQy \_v‡K bv|

gnvwe‡k¦i m~Pbv m¤ú‡K© weM e¨vs Z‡Ë¡i e³e¨¸‡jv A™¢~Z| Z‡e weM e¨vs‡qi c«gv‡Yi R‡b¨ hw` gnvwe‡k¦i c«mvi‡Yi IciB wbfi« Kiv nZ, Zvn‡j m¤¢eZ A‡bK Km‡gvjwR÷B G‡K ‡g‡b wb‡Zb bv| wKš‘ 1965 mv‡j ZË¡wUi c‡¶ ¸i“Z¡c~Y© AviI c«gvY Gj| Rvbv ‡Mj, cy‡iv gnvwek¦ Zvcxq wewKi‡Y cwic~Y©| gnvk~b¨ ‡\_‡K Avmv G wewKiY weM e¨vs‡qi Aí mgq c‡ii| Avm‡Q AvKv‡ki me w`K ‡\_‡K GKB Zxe«Zv wb‡q| Ab¨ wKQy Øviv GwU evavM«¯’ nq bv ej‡jB P‡j| d‡j GwU Avgv‡`i mvg‡b Avw`g gnvwe‡k¦i Ae¯’vi GKwU wPÎ Zy‡j ai‡Q| GB Zvcxq wewKi‡Yi eY©vwji mv‡\_ ZvcMZxq mvg¨ve¯’vq ‡cŠuQv GKwU Pywj­i DËv‡ci ûeû wgj i‡q‡Q| G ai‡bi wewKiY‡K c`v\_©weÁvbxiv e‡jb K…òe¯—y wewKiY3| d‡j Avgiv eyS‡Z cviwQ, c«v\_wgK gnvwek¦ Ggb GKwU mvg¨ve¯’vqB wQj| me©Î ZvcgvÎv wQj GKB iKg|

GB cUf~wg Zvcxq wewKiY cwigvc K‡i Rvbv ‡Mj, Gi ZvcgvÎv n‡jv cig k~b¨ ZvcgvÎvi ‡P‡q c«vq wZwb wWwM« ‡ewk (cig k~b¨ ZvcgvÎv n‡jv gvBbvm 273 wWwM« ‡mjwmqvm)| wKš‘ mg‡qi mv‡\_ mv‡\_ ax‡i ax‡i ZvcgvÎvi cwieZ©b nq| c«mvi‡Yi mv‡\_ mv‡\_ GKwU mij m~Î ‡g‡b gnvwek¦ VvÊv n‡Z \_v‡K| e¨vmva© wØ¸Y n‡j ZvcgvÎv A‡a©‡K ‡b‡g Av‡m| GB kxZjxKiY c«fve Avi Av‡jvi ‡jvwnZ miY GKB wRwbm| Zvcxq wewKiY Avi Av‡jv—`y‡UvB Zwo”Py¤^Kxq Zi½ Øviv MwVZ| Ges gnvwe‡k¦i c«mvi‡Yi mv‡\_ mv‡\_ Zvcxq wewKi‡Yi Zi½‰`N¨©I eo n‡Z \_v‡K| D”P ZvcgvÎvi ‡P‡q wbgœ ZvcgvÎvi wewKi‡Yi Zi½‰`N¨© (M‡o) A‡c¶vK…Z eo nq| Avevi, D‡ëv K‡i ‡`L‡j Avgiv ‡`wL, AZx‡Z gnvwek¦ Aek¨B A‡bK ‡ewk DËß wQj| GB wewKi‡Yi m~Pbv N‡UwQj weM e¨vs‡qi wZb j¶ eQi c‡i| ‡h mgq kxZj n‡Z n‡Z gnvwe‡k¦i ZvcgvÎv ‡b‡g G‡mwQj c«vq 3000 wWwM« ‡mjwmqv‡m| GB mg‡qi Av‡M g~jZ nvB‡W«v‡Rb w`‡q MwVZ Avw`g M¨vm wQj AvqwbZ c­vRgv4 AvKv‡i| G Kvi‡Y ‡m mgq G M¨v‡mi ‡fZi w`‡q Zwo”Py¤^Kxq wewKiY mÂvwjZ n‡Z cviZ bv| ZvcgvÎv Kg‡j c­vRgv mvaviY (A-AvqwbZ) nvB‡W«v‡Rb M¨v‡m ciwYZ n‡jv| wewKiY Gi ga¨ w`‡q mÂvwjZ n‡Z cv‡i| d‡j wewKiY Gevi gy³fv‡e Qwo‡q co‡Z ïi“ Kij|

cUf~wg wewKiY GKUy Avjv`v| ‡mUv ïay Gi eY©vwji K…òe¯—yi g‡Zv AvPi‡Yi R‡b¨B bq| AvKv‡ki me w`‡K GwU `vi“Yfv‡e GKB iKg| gnvk~‡b¨i Avjv`v w`‡K GB wewKi‡Yi ZvcgvÎvi cv\_©K¨ gvÎ GK j¶ fv‡Mi GK fvM| GUv ‡\_‡K ‡evSv hvq, eo gvcKvwV‡Z wPš—v Ki‡j gnvwek¦ ‡hvM¨fv‡e mgag©x| KviY, ¯’v‡bi ‡Kv‡bv GKwU AÂ‡j ev wbw`©ó ‡Kv‡bv w`‡K hw` c`v\_© wbqgZvwš¿Kfv‡e cywÄf~Z n‡Zv, Zvn‡j ZvcgvÎvi cv\_©K¨ ‡`Lv ‡hZ| Ab¨ w`‡K Avgiv Rvwb, gnvwek¦ cy‡ivcywi mylg bq| c`v\_© GKxf~Z n‡q Qvqvc\_ ‰Zwi n‡q Av‡Q| wewfbœ Qvqvc\_ wg‡j Avevi ‰Zwi nq K¬v÷vi ev ¯—eK| GB K¬v÷viiv Avevi ‰Zwi K‡i mycviK¬v÷vi| eû wgwjqb Av‡jvKe‡li« gvcKvwV‡Z gnvwe‡k¦i AvK…wZ A‡bKUv ‡dbvi g‡Zv| wecyj cwigvY k~b¨Zvi gv‡S gv‡S Qvqvc\_ Zš‘i Dcw¯’wZ|

wPÎ: 3.2.1

(Qvqvc\_ Zš‘i (Galaxy filament) ‡Pnviv eo gvcKvwV‡Z 3.2.1 wP‡Îi g‡Zv| GwU n‡jv gnvwe‡k¦i Rvbv KvVv‡gv¸‡jvi g‡a¨ me‡P‡q eo| ‰`N¨© n‡Z cv‡i 16 ‡KvwU ‡\_‡K 26 ‡KvwU Av‡jvKel© ch©š—| -Abyev`K)

eo ‡¯‹‡j gnvwe‡k¦i GB ¸”Qe×Zv c«viw¤¢K gm…Y Ae¯’v ‡\_‡KB ‡Kv‡bvfv‡e Rb¥ wb‡q‡Q| Gi ‡c‡Q‡b A‡bK¸‡jv ‡fŠZ KviY \_vK‡Z cv‡i| Z‡e me‡P‡q fv‡jv e¨vL¨v n‡jv axi gnvKl©xq AvKl©Y| weM e¨vs ZË¡ mwVK n‡q \_vK‡j ¸”Qe× nIqvi c«wµqvi c«v\_wgK Ae¯’vi wKQy c«gvY gnvRvMwZK cUf~wg wewKi‡Yi g‡a¨ \_vKvi K\_v| 1992 mv‡j ‡Kve (COBE ev Cosmic Background Explorer) bv‡g bvmvi GKwU K…wÎg DcM«‡ni gva¨‡g Rvbv hvq, wewKiY cy‡ivcywi gm…Y bq| AvKv‡ki GK w`K ‡\_‡K Av‡iK w`‡K G‡Z my¯úó Q›`cZb ‡`Lv hv‡”Q| A\_ev ‡`Lv hv‡”Q Zxe«Zvi DVv-bvgv| GB ¶y`« ¶y`« Q›`cZb¸‡jvB mycviK¬v÷vi‡`i MVb c«wµqvi wbwe©N&b m~Pbv K‡iwQj| G wewKiY Avw`g ¸”Qe×Zvi wPý Av¯’vi mv‡\_ a‡i ‡i‡L‡Q| ‡mUvI Avevi eû Kvj hveZ| Gi M«vd ej‡Q, AvR Avgiv ‡h m…k…•Lj ¯^Zš¿ gnvwek¦ ‡`LwQ, GwU me mgq Ggb wQj bv| ïi“‡Z gnvwek¦ wQj c«vq cy‡ivcywi mylg Ae¯’vq| GKwU j¤^v weeZ©‡bi gva¨‡g c`v\_© cyÄxf~Z n‡Z n‡Z cieZ©x‡Z Qvqvc\_ I b¶‡Îi Rb¥ nq|

DËß Nb Ae¯’v ‡\_‡K gnvwe‡k¦i Rb¥ nIqvi c‡¶ Av‡iKwU P~W়vš— c«gvYI Av‡Q| AvR‡Ki w`‡bi Zvcxq wewKi‡Yi ZvcgvÎv ‡R‡b Avgiv mn‡RB wnmve K‡i ‡dj‡Z cvwi ‡h R‡b¥i c«vq GK eQi ci gnvwe‡k¦i meLv‡b ZvcgvÎv wQj c«vq GK nvRvi wWwM« ‡mjwmqvm| GB ZvcgvÎv GZUvB ‡ewk ‡h G‡Z ‡hŠwMK cigvYyi ‡K‡›`«i c‡¶I wU‡K \_vKv m¤¢e bq| ‡mB mgq e¯—y Aek¨B Gi me‡P‡q ‡gŠwjK Dcv`v‡b wef³ wQj| d‡j G mgq ‡c«vUb, wbDU«b I B‡jKU«‡bi g‡Zv ‡gŠwjK5 KwYKviv wePiY KiwQj \_‡i \_‡i| wKš‘ ZvcgvÎv GKUy Kg‡j wbDK¬xq wewµqv NUv m¤¢e n‡jv| we‡kl K‡i ‡c«vUb I wbDU«b gy³fv‡e ‡Rvovq ‡Rvovq hy³ nevi my‡hvM ‡cj| ‡kl ch©š— GB ‡Rvov¸‡jvB hy³ n‡q wnwjqvg cigvYyi ‡K›`« (wbDwK¬qvm) MVb K‡i| wnmve K‡i ‡`Lv ‡M‡Q, GB wbDK¬xq c«wµqv¸‡jv PjwQj c«vq wZb wgwbU a‡i (Gi Ici wfwË K‡iB w÷‡fb DBbevM© eB‡qi bvg w`‡qwQ‡jb `¨ dv÷© w\_« wgwbUm)| GUyKyb mg‡qi g‡a¨ c«vq Pvi fv‡Mi GK fvM cwigvY c`v\_© wnwjqv‡g cwiYZ nq| G‡Z K‡i Dcw¯’Z me¸‡jv wbDU«b KYv ‡kl n‡q hvq| d‡j Avi ‡Kv‡bv Dcvq bv ‡`‡L evwK me Ahy³ ‡c«vUb¸‡jv nvB‡W«v‡Rb6 wbDwK¬qv‡m cwiYZ nq| Zvi gv‡b ZË¡ ej‡Q, gnvwe‡k¦ c«vq 75 fvM nvB‡W«v‡Rb I 25 fvM wnwjqvg \_vKv DwPr| eZ©gvb mg‡qi wnmve-wbKv‡ki mv‡\_ GB e³‡e¨i Lye fv‡jv wgj cvIqv ‡M‡Q|

Avw`g ‡mB wbDK¬xq wewµqvq m¤¢eZ mvgvb¨ cwigvY wWD‡Uwiqvg7 , wnwjqvg-3 Ges wjw\_qvgI ‰Zwi n‡qwQj| Z‡e fvix ‡gŠj¸‡jv weM e¨vs‡qi mgq ‰Zwi nqwb| gnvRvMwZK c`v\_©¸‡jvi g‡a¨ G‡`i cwigvY GK kZvs‡kiI Kg| G¸‡jv c«¯—Z n‡qwQj AviI A‡bK c‡i| b¶‡Îi Af¨š—‡i| ‡mUv Kxfv‡e n‡qwQj Zv Avgiv PZy\_© Aa¨v‡q ‡`Le|

me wgwj‡q gnvwe‡k¦i c«mviY, gnvRvMwZK cUf~wg wewKiY Ges ivmvqwbK ‡gŠ‡ji Av‡cw¶³ c«vPyh©- GB welq¸‡jv weM e¨vs Z‡Ë¡i c‡¶ ‡Rviv‡jv c«gvY| Z‡e A‡bK c«‡kœi Reve GLbI ARvbv| ‡hgb, gnvwek¦ wVK GB nv‡iB ‡Kb c«mvwiZ n‡”Q? gv‡b, weM e¨vs ‡Kb GZ weM (eo) wQj? c«v\_wgK gnvwek¦ ‡Kb GZUv mylg (me w`‡K GKB iKg) wQj? Gnvk~‡b¨i me w`‡K ‡KbBev c«mviY nvi GZUv mv`…k¨c~Y© wQj? ‡Kve (COBE) ‡h GKUy e¨wZµg Nb‡Z¡i AÂj Lyu‡R ‡c‡q‡Q ZviB ev DZ&m Kx wQj? Qvqvc\_ I Qvqvc\_ ¸”Q ‰Zwi‡Z wKš‘ GUyKy e¨wZµ‡gi Lye `iKvi wQj|

GB eo avuav¸‡jv mgvav‡bi j‡¶¨ mv¤cÖwZK mg‡q eo eo D‡`¨vM ‡bIqv n‡q‡Q| D”P-kw³i KYvc`v\_©we`¨vi mv‡\_ weM e¨vs ZË¡‡K GKxf~Z Kiv n‡”Q| GKUv welq Av‡MB e‡j ivwL| ‰eÁvwbK `…wó‡KvY ‡\_‡K GB ÔbZyb Km‡gvjwRÕ wKš‘ Av‡M Av‡jvwPZ welq¸‡jvi ‡P‡q GKUy Kg wbfi«‡hvM¨| we‡kl K‡i KwYKvi ‡h cwigvY kw³ c«Z¨¶fv‡e ch©‡e¶Y Kiv n‡q‡Q Zvi ‡P‡q A‡bK ‡ewk kw³‡Z msNwUZ c«wµqv wb‡q Av‡jvPbv Kie Avgiv| Avi GB c«wµqv¸‡jv msNwUZ n‡qwQj gnvwe‡k¦i R‡b¥i c‡ii ‡m‡K‡Ûi AwZ ¶y`« GK fMœvsk mg‡qi g‡a¨| ‡mB mg‡qi Ae¯’v m¤¢eZ GZUvB Pig wQj ‡h eZ©gv‡b MvwYZK bgybv (model) Qvov Avgv‡`i nv‡Z wKQyB ‡bB| GB bgybvi wfwË wbQKB ZvwË¡K wKQy aviYv| mgq AvKvi ùxwZ

GB bZyb Km‡gvjwRi GKwU Abygvb n‡jv Bb‡d¬kb ev ùxwZ (inflation) bv‡gi GKwU c«wµqv| GwUi g~j e³e¨ n‡jv, GK ‡m‡K‡Ûi c«\_g fMœvs‡ki ‡Kv‡bv GK mg‡qi g‡a¨ gnvwek¦ nVvr K‡i eo n‡q wekvj AvKvi aviY K‡i| welqwU eyS‡Z n‡j 3.2 wPÎwU Avevi ‡`Lyb| ‡iLvwU me mgq wb‡Pi w`‡KB ‡eu‡K Av‡m| Zvi gv‡b, ¯’v‡bi mvBR eo n‡Z \_vK‡jI Zv nq µ‡gB Av‡Mi P‡q Aí nv‡i| Ab¨ w`‡K, ùxwZi mgq c«mviY N‡UwQj µgk Av‡Mi ‡P‡q `ª“Z ‡e‡M| G Ae¯’vwU ‡`Lv‡bv n‡q‡Q 3.3 bs wP‡Î (mwVK gvcKvwV‡Z bq)| c«\_‡g c«mviY \_vgwQj, wKš‘ ùxwZ ïi“ n‡Z n‡Z GwU `ª“Z ‡e‡o hvq| wKQy mg‡qi R‡b¨ ‡iLvwU Dc‡ii w`‡K QyU‡Z \_v‡K| ‡k‡l ‡iLvwU Avevi ¯^vfvweK Ae¯’vq wd‡i Av‡m| wKš‘ Gi g‡a¨B ¯’v‡bi mvnR 3.2 wP‡Îi Ae¯’v‡bi Zyjbvq A‡bK A‡bK eo n‡q hvq (GLv‡b hv ‡`Lv‡bv n‡q‡Q Zvi ‡P‡q A‡bK ‡ewk)|

wPÎ 3.3

ùxwZi ¯^iƒc| GKwU we‡ùvi‡Yi gva¨‡g ïi“ nIqvi c‡i AwZ Aí mg‡qi g‡a¨ gnvwek¦ nVvr K‡i wekvj eo n‡q hvq| Dj¤^ A¶wU‡K Lye ‡ewk m¼ywPZ K‡i ‡`Lv‡bv n‡q‡Q| ùxwZ `kvi c‡i c«mvi‡Yi nvi µgk Kg‡Z \_v‡K| 3.2 wP‡Îi g‡ZvB|

wKš‘ gnvwe‡k¦i AvPiY ‡Kb Ggb n‡jv? GLv‡b gv\_vq ivL‡Z n‡e ‡h ‡iLvi bx‡Pi w`‡Ki MwZUv ‡cQ‡b `vqx n‡jv gnvKl©xq AvKl©Y ej| GwU c«mviY‡K \_vwg‡q w`‡Z Pvq| d‡j Dc‡ii w`‡K MwZ‡K GK ai‡bi A¨vw›UMª¨vwfwU ev wecixZ gnvKl© Z\_v weKl©Y e‡ji c«fve a‡i ‡bIqv ‡h‡Z cv‡i| hvi d‡j gnvwe‡k¦i mvBR µgk eo n‡”Q| wecixZ gnvK‡li« aviYv‡K Lye A™¢yZ g‡b n‡Z cv‡i| wKš‘ mv¤cÖwZK wKQy Abygvbwbfi« Z‡Ë¡i g‡Z G‡Kev‡i c«v\_wgK gnvwe‡k¦i ZvcgvÎv I Nb‡Z¡i Pig Ae¯’vq Ggb wKQy N‡U \_vK‡ZI cv‡i|

‡mUv Kxfv‡e Zv ejvi Av‡M Avwg ej‡Z PvB Kxfv‡e ùxwZ ZË¡ Ic‡i Dwj­wLZ wKQy gnvRvMwZK avuavi mgvavb Ki‡Z cv‡i| c«\_gZ, µgk `ª“Z nv‡ii c«mviY ‡\_‡K weM e¨vs ‡Kb GZ eo wQj Zvi GKwU e¨vL¨v cvIqv hvq| A¨vw›UMª¨vwfwU c«fvewU ‡ek Aw¯’wZkxj I Zvr¶wYK c«wµqv| Zvi gv‡b, gnvwe‡k¦i mvBR eo nq m~PKxq nv‡i (exponentially)| MvwYwZKfv‡e ej‡j G K\_vi gv‡b `vuovq, GKwU wbw`©ó cwigvY mg‡q GKwU wbw`©ó cigwvY ¯’v‡bi AvKvi wØ¸Y nq| aiv hvK, G mgqwUi bvg GKwU wUK| Zvn‡j `ywU wUK c‡i mvBR n‡e Pvi¸Y| wZb wU‡Ki c‡i AvU¸Y| `k wU‡Ki c‡i ¯’vbwU c«mvwiZ n‡e 10 nvRvi ¸‡YiI ‡ewk| wnmve K‡i ‡`Lv ‡M‡Q, ùxwZ hyM cieZ©x c«mviY nvi eZ©gvb mg‡q ch©‡e¶‡Y c«vß c«mviY nv‡ii mv‡\_ wg‡j ‡M‡Q| (GUv Øviv Avm‡j Kx ‡evSv‡Z Pvw”Q Zv Avwg lô Aa¨v‡q mwe¯—v‡i eje)

ùxwZi Kvi‡Y mvBR ‡e‡o hvIqv ‡\_‡K gnvwe‡k¦i mylg nevi ‡cQ‡bi KviYUvI mn‡RB e¨vL¨v Kiv hvq| ¯’v‡bi c«mvi‡Yi Kvi‡Y c«v\_wgK ‡h‡Kv‡bv welgZv DavI n‡q hv‡e| ‡ejyb‡K dywj‡q eo Ki‡j ‡hfv‡e Gi fvuR¸‡jv DavI n‡q hvq ‡mfv‡eB| GKBfv‡e, c«v\_wgK ch©v‡q wfbœ wfbœ w`‡K c«mvi‡Yi ‡h wfbœZv wQj ZvI ùxwZi c«fv‡e wKQy mgq c‡i wgwj‡q hvq| KviY, ùxwZ me w`‡K mgvb ‡Z‡R KvR K‡i| Zvn‡j ‡Kve ‡h mvgvb¨ welgZv ‡cj Zvi e¨vL¨v Kx? Gi KviY m¤¢eZ ùxwZ GKB mg‡q mKj RvqMvq \_v‡gwb (Gi KviYI GKUy c‡i ejwQ)| d‡j wKQy AÂj Ab¨ AÂ‡ji ‡P‡q GKUy ‡ewk dy‡j-‡du‡c wM‡qwQj| d‡j Nb‡Z¡I n‡q wM‡qwQj wKQy ZviZg¨|

Gevi wKQy msL¨v wb‡q K\_v ewj| ùxwZ Z‡Ë¡i me‡P‡q mij iƒcwU‡Z ùxwZi (A¨vw›UM¨vwfwU) kw³ Lye ‡ewk kw³kvjx| hv gnvwek¦‡K GK ‡m‡K‡Ûi c«vq 10 j¶ ‡KvwU ‡KvwU ‡KvwU ‡KvwU fv‡Mi GK fvM mg‡qi g‡a¨ wØ¸Y eo K‡i ‡d‡j| AwZ ¶y`«vwZ¶y`« GB mgqwU‡KB Avwg GKUy Av‡M GK wUK e‡jwQjvg| gvÎ 100 wU wU‡Ki c‡iB GKwU cigvYyi wbDwK¬qv‡mi mvB‡Ri ¯’vb dy‡j-‡du‡c wM‡q GK jvL Av‡jvKel© PIov AÂj n‡q hvq| Av‡M e‡j Avmv gnvRvMwZe in‡m¨i e¨vL¨vq GUv cy‡ivcywi h‡\_ó|

AwZcvigvYweK KYvc`v\_©we`¨vi wewfbœ Z‡Ë¡i mvnv‡h¨ ùxwZi D‡`«KKvix A‡bK¸‡jv m¤¢ve¨ c«wµqv Avwe®‹…Z n‡q‡Q| GB me¸‡jv c«wµqvB ‡Kvqv›Uvg f¨vKyqvg bv‡g GKwU aviYvi Ici wbfi«kxj| GUv eyS‡Z n‡j Av‡M ‡Kvqv›Uvg c`v\_©we`¨v m¤ú‡K© wKQy K\_v ‡R‡b Avm‡Z n‡e| ‡Kvqv›Uvg Z‡Ë¡i m~Pbv N‡UwQj Av‡jv, Zvc BZ¨vw` Zwo”Py¤^Kxq wewKi‡Yi ag© m¤ú‡K© GKwU Avwe®‹v‡ii ga¨ w`‡q| GB wewKiY ¯’v‡bi ‡fZi w`‡q Zi½ AvKv‡i Pj‡jI GwU Avevi Ggbfv‡eI AvPiY Ki‡Z cv‡i hv‡Z g‡b nq GwU Avm‡j KYv w`‡q MwVZ| Av‡jvi wbM©gb I ‡kvlY N‡U kw³i ¶y`« ¶y`« c¨v‡KU ev ¸”Q (‡Kvqv›Uv) AvKv‡i| GB ¸”Q¸‡jvi bvg ‡dvUb| Zi½ I KYvgq AvPi‡Yi GB mgv‡ek cvigvYweK I AwZcvigvYweK RM‡Zi me e¯—yi ‡¶‡ÎB ‡`Lv hvq| d‡j, B‡jKU«b, ‡c«vUb, wbDU«b BZ¨vw` ‡h mË¡v¸‡jv‡K mvaiYfv‡e KYv g‡b Kvi nq, Zv‡`i mevB-B, GgbwK cy‡iv cigvYyI we‡kl we‡kl cwiw¯’wZ‡Z Zi‡½i g‡Zv AvPiY Ki‡Z cv‡i|

‡Kvqv›Uvg Z‡Ë¡i GKwU c«avb Ask n‡jv I‡qb©vi nvB‡Rbev‡Mi« AwbðqZv bxwZ| GwU Abymv‡i ‡Kvqv›Uvg e¯—y‡`i me¸‡jv ‰ewk‡ó¨i R‡b¨ mymsÁvqwZ gvb \_vK‡e bv| ‡hgb GKwU B‡jKU«‡bi GKB mv‡\_ GKwU wbw`©ó Ae¯’vb I wbw`©ó fi‡eM \_vK‡Z cv‡i bv| GKwU wbw`©ó gyn~‡Z© Gi kw³i gvbI wbw`©ó \_vK‡Z cv‡i bv| GLv‡b KvR K‡i kw³i gv‡bi AwbðqZv| Avgv‡`i wPi‡Pbv eo RM‡Z ‡Zv kw³ me mgq msiw¶Z8 \_v‡K (Gi m…wó ev webvk ‡bB)| wKš‘ ‡Kvqv›Uvg RM‡Z bxwZwU‡K ¯’wMZ K‡i ivLv hvq| GK gyn~Z© ‡\_‡K Ab¨ gyn~‡Z© ¯^Zù~Z© I Abby‡gqfv‡e kw³i cwigvY e`‡j ‡h‡Z cv‡i| hZ Aí mgq we‡ePbv Kiv n‡e, GB ‰`e ‡Kvqv›Uvg welgZvI ZZ ‡ewk n‡e| mwZ¨ ej‡Z, KYvwU k~b¨ ‡\_‡KB kw³ avi Ki‡Z cv‡i, hw` wK bv Avevi Lye `ª“ZB ‡mB kw³ cwi‡kva K‡i ‡`Iqv nq| nvB‡Rbev‡Mi« AwbðqZvi bxwZi m~² MvwYwZK fvl¨ g‡Z eo AvKv‡i avi Kiv kw³ `ª“Z wdwi‡q w`‡Z nq| Avi ‡QvU F‡Yi ‡gqv` nq ‡ewk|

kw³i GB AwbðqZv ‡\_‡K wKQy `vi“Y djvdj ‡ewi‡q Av‡m| GgbI m¤¢vebv Av‡Q nVvr K‡i k~b¨ ‡\_‡K ‡dvU‡bi g‡Zv GKwU KYv ‰Zwi n‡q ‡Mj| wgwj‡q ‡Mj LvwbK c‡iB| GB KYv¸‡jvi Aw¯—Z¡ wU‡K \_v‡K avi Kiv kw³i Ici wbfi« K‡i| Ges ‡mB Kvi‡Y GB Aw¯—Z¡ wbfi« K‡i mg‡qi IciI| Avgiv G‡`i‡K ‡`wL bv KviY Giv nq LyeB ¶Y¯’vqx| wKš‘ Avgiv hv‡K k~b¨ ¯’vb e‡j g‡b Kwi ‡mUv Avm‡j G ai‡bi ¶Y¯’vqx KYvq cwic~Y©| ïay ‡dvUbB bq, Ggb KYvi g‡a¨ i‡q‡Q B‡jKU«b, ‡c«vUb I Ab¨ mevB| Avgv‡`i cwiwPZ I ¯’vqx KYv¸‡jv ‡\_‡K Avjv`v Kivi R‡b¨ GB ¶Y¯’vqx KYv‡`i‡K ejv nq fvP©yqvj KYv| ¯’vqx‡`i bvg ‡hLv‡b ev¯—e KYv|

A¯’vwq‡Z¡i K\_v ev` w`‡j fvP©yqvj KYvi mv‡\_ ev¯—e KYvi ‡Kv‡bv cv\_©K¨ ‡bB| Ges evB‡i ‡\_‡K kw³ mievin K‡i nvB‡RbevM© FY cwi‡kv‡ai e¨e¯’v Ki‡j fvP©yqvj KYv‡`i‡K ev¯—e KYvqI iƒcvš‘wiZ Kiv m¤¢e| Ges mwZ¨ ej‡Z, G‡K ZLb GKB ai‡bi Ab¨ ev¯—e KYv ‡\_‡K Avjv`v K‡i ‡PbvI m¤¢e bq| ‡hgb GKwU fvP©yqvj B‡jKU«b mvaviYZ gvÎ 10-21 ‡m‡KÛ mgq ¯’vqx nq| ¯^ívqyi Rxe‡b GwU wKš‘ w¯’i e‡m \_v‡K bv| webvk nevi Av‡M Av‡M AwZµg K‡i ‡dj‡Z cv‡i 10-11 ‡mw›UwgUvi c\_ (‡hLv‡b GKwU cigvYy 10-8 ‡mw›UwgUvi PIov)| GB mg‡qi g‡a¨B hw` fvP©yqvj B‡jKU«bwU ‡Kv\_vI ‡\_‡K kw³ M«nY Ki‡Z cv‡i (‡hgb ai“b Zwo”Py¤^Kxq ‡¶Î ‡\_‡K), Zvn‡j Avi G‡K wejyß n‡Z n‡e bv| GwU ZLb wejKyj ¯^vfvweK B‡jKU«b wn‡m‡e wb‡Ri Aw¯—Z¡ wUwK‡q ivL‡Z cv‡i|

Avgiv GB fvP©yqvj KYv‡`i‡K ‡`L‡Z bv ‡c‡jI Rvwb ‡h k~b¨ ¯’v‡b G‡`i Aw¯—Z¡ Av‡Q| KviY G‡`i kbv³‡hvM¨ j¶Y Giv ‡i‡L hvq| ‡hgb fvP©yqvj ‡dvU‡bi GKwU c«fve n‡jv, GwU cigvYyi kw³ ¯—‡i9 kw³i mvgvb¨ cwieZ©b ‰Zwi K‡i| GQvovI B‡jKU«‡bi ‡PŠ¤^K åvg‡KI mgvb cwigvY cwieZ©b NUvq| eY©vjxex¶Y c×wZ‡Z B‡Zvg‡a¨B GB ‡QvU wKš‘ ¸i“Z¡c~Y© cwieZ©b¸‡jv wbLyuZfv‡e cwigvc Kiv n‡q‡Q|

wKš‘ Av‡iKwU welq Gwo‡q ‡Mj fyj n‡q hv‡e| KviY n‡jv AwZcvigvYweK KwYKviv wKš‘ gy³fv‡e PjvPj K‡i bv| GUv wbfi« K‡i A‡bK¸‡jv e‡ji Ici| ‡Kvb c«Kvi ej KvR Ki‡e ‡mUv wbfi« Ki‡e KYvi c«K…wZi Ici| G e‡ji c«fv‡e wKš‘ Dc‡i ‡`Iqv ‡Kvqv›Uvg f¨vKyqv‡gi mij wPÎwU GK`g cv‡ë hvq| GB ej KYv‡`i ¯^ ¯^ fvP©yqvj KYv‡`i g‡a¨I KvR K‡i| AZGe n‡Z cv‡i G‡Ki ‡ewk ai‡bi f¨vKyqvg Ae¯’vi Aw¯—Z¡ i‡q‡Q| GKvwaK m¤¢ve¨ ‡Kvqv›Uvg Ae¯’vi (‡÷U) Aw¯—Z¡ ‡Kvqv›Uvg c`v\_©we`¨vi GKwU cwiwPZ w`K| Gi me‡P‡q cwiwPZ D`vniY n‡jv cigvYyi wewfbœ kw³ ¯—i| cigvYyi wbDwK¬qvm‡K c«`w¶YiZ B‡jKU«b ïay wbw`©ó kw³i wKQy mymsÁvwqZ Ae¯’v‡ZB Aw¯—Z¡evb \_vK‡Z cv‡i| me‡P‡q bx‡Pi ¯—‡ii bvg M«vDÛ ‡÷U| GUv w¯’wZkxj Ae¯’v| D”PZi Ae¯’v¸‡jv D‡ËwRZ I Aw¯’wZkxj| ‡Kv‡bv B‡jKU«b D”PZi Ae¯’vq P‡j ‡M‡j GwU GK ev GKvwaK av‡c cybivq bx‡Pi ¯—‡i Aew¯’Z M«vDÛ ‡÷‡U P‡j Avm‡e| mymsÁvwqZ Aa©vqy (half life) wewkó D‡ËwRZ Ae¯’v Gfv‡eB ¶q n‡Z \_v‡K|

f¨vKyqv‡gi ‡¶‡ÎI GKB bxwZ KvR K‡i| G‡Z GK ev GKvwaK D‡ËwRZ ‡÷U \_vK‡Z cv‡i| GB ‡÷U¸‡jvi kw³i cwigvY wfbœ wfbœ| Aek¨ Zv‡`i‡K ‡`L‡Z GKB iKg ‡`Lv‡e| Avi hvB ‡nvK, meB ‡Zv Lvwj! me©wbgœ kw³ ¯—i ev M«vDÛ ‡÷U‡K A‡bK mgq ejv nq c«K…Z f¨vKyqvg| KviY, GUvB n‡jv w¯’wZkxj Ae¯’v| Ges GwUB Avgv‡`i eZ©gv‡bi ‡`Lv gnvwe‡k¦i k~b¨ ¯’vb wn‡m‡e KvR K‡i| D‡ËwRZ f¨vKyqvg‡K ejv nq bKj f¨vKyqvg|

Z‡e e‡j ivLv fvj, bKj f¨vKyqvg GLb ch©š— wbQKB ZvwË¡K GKwU aviYv| Ges G‡`i ‰ewkó¨I g~jZ wbfi« K‡i ‡Kvb ZË¡ w`‡q G‡`i‡K wePvi Kiv n‡”Q Zvi Ici| Z‡e mv¤cÖwZK ZË¡¸‡jv‡Z G‡`i aviYv mnRvZfv‡eB P‡j Av‡m| G ZË¡¸‡jvi j¶¨ n‡jv c«K…wZi PviwU ‡gŠwjK ej‡K GKxf~Z Kiv| ej¸‡jv n‡jv gnvKl©, Avgv‡`i cwiwPZ Zwo”Py¤^Kxq ej Ges ¯^í-cvj­vi `ywU wbDK¬xq ej, hviv `ye©j I mej ej wn‡m‡e cwiPwZ| GK mgq Aek¨ ZvwjKvUv AviI j¤^v wQj| Zwor I ‡PŠ¤^K ej‡K GK mgq Avjv`v fvev nZ| GKxf~Z Kivi KvR ïi“ nq Ewbk kZ‡Ki ïi“i w`‡K| mv¤cÖwZK `kK¸‡jv‡Z G Kv‡R fv‡jv AM«MwZ n‡q‡Q| GLb Rvbv n‡q ‡M‡Q ‡h Zwo”Py¤^Kxq Ges `ye©j wbDK¬xq ej GKB my‡Zvq Mvu\_v| G‡K GK K\_vq ejv n‡”Q ZwoZ&`ye©j ej (electroweak force)| eû c`v\_©we` wek¦vm K‡ib, mej ejI ZwoZ&`ye©j e‡ji mv‡\_ wg‡j hv‡e| Ggb wgj ‰Zwi‡Z m¶g ZË¡¸‡jv‡K ejv nq Mª¨vÛ BDwbdv‡qW w\_Iwi| GUv nIqv Lye m¤¢e ‡h Mfxi ‡Kv‡bv ch©v‡q me¸‡jv ‡dvm© ev ej GKwUgvÎ mycvi-‡dv‡m© G‡m wgwjZ n‡e|

ùxwZ c«wµqvi me‡P‡q fv‡jv e¨L¨v¸‡jv cvIqv hvq wewfbœ Mª¨vÛ BDwbdv‡qW w\_Iwi ‡\_‡KB| G ZË¡¸‡jvi GKwU g~j ‰ewkó¨ n‡jv bKj f¨vKyqvg ‡÷‡Ui kw³ A‡bK ‡ewk| gvÎ GK NbwgUvi ¯’v‡bi kw³ 1087 Ryj10 Ggb Ae¯’vq cigvYyi g‡Zv ‡QvÆ AvqZ‡bi RvqMvqI 1062 Ryj kw³ \_vK‡e| ‡hLv‡b GKwU D‡ËwRZ cigvYyi kw³ gvÎ 10-18 Ryj| d‡j c«K…Z f¨vKyqvg‡K D‡ËwRZ n‡Z A‡bK A‡bK ‡ewk kw³ c«‡qvRb| Ges eZ©gvb gnvwe‡k¦ bKj f¨vKyqv‡gi ‡`Lv cvIqvi AvkvI ‡bB| Z‡e weM e¨vs‡qi g‡Zv Pig Ae¯’vq welq¸‡jv m¤¢e|

bKj f¨vKyqvg ‡÷‡U ‡h wecyj cwigvY kw³ \_v‡K Zvi \_v‡K Zxe« gnvKl©xq c«fveI| KviY, AvBb÷vBb Avgv‡`i ‡`wL‡q‡Qb, kw³iI fi Av‡Q| d‡j mvaviY e¯—yi g‡Zv GiI gnvKl©xq AvKl©Y \_vK‡e| ‡Kvqv›Uvg f¨vKyqv‡gi Zxe« kw³ Lye Zxe« AvKl©Yag©x| GK NbwgUvi bKj f¨vKyqv‡gi kw³ 1067 Ub f‡ii mgvb| ch©‡e¶Y‡hvM¨ cy‡iv gnvwe‡k¦i fiI AviI Kg (1050)| GB Zxe« gnvKl© ùxwZi c‡¶ K\_v e‡j bv| ùxwZi R‡b¨ `iKvi ‡Kv‡bv iKg GKwU A¨vw›UMª¨vwfwU| wKš‘ bKj f¨vKyqv‡gi wekvj kw³i R‡b¨ `iKvi GKB iKg wekvj cwigvY bKj f¨vKyqvg Pvc (false-vacuum pressure)| GB PvcUvB wKš‘ Avmj welq| Avgiv mvaviYZ Pvc‡K gnvK‡li« DZ&m g‡b Kwi bv| wKš‘ Avm‡j ‡mwU DZ&m wn‡m‡e KvR K‡i| evB‡ii w`‡K hvwš¿Y ej c«‡qvM Ki‡jI Pvc Avevi ‡fZ‡ii w`‡KI gnvKl©xq Uvb ‰Zwi K‡i| Avgv‡`i m`v-cwiwPZ e¯—y‡`i ‡¶‡Î Zvi f‡ii Zyjbvq Pv‡ci gnvKl©xq c«fve Lye bMY¨| ‡hgb, c…w\_ex‡Z Avcbvi IR‡bi GKk ‡KvwU fv‡Mi GK fv‡MiI K‡gi ‡cQ‡b `vqx n‡jv c…w\_exi Af¨š—ixY Pvc| wKš‘ ZeyI GUv wKš‘ ev¯—e| Ges ‡Kv‡bv wm‡÷‡g Pvc AZ¨waK n‡j fiRwbZ gnvKl©xq c«fv‡ei ‡P‡qI GwU ‡ewk K‡i Abyf~Z n‡e|

bKj f¨vKyqv‡gi ‡¶‡Î kw³11 ‡hgb wekvj, ‡Zgwb wekvj Zvi Pvc| wKš‘, ¸i“Z¡c~Y© welq n‡jv Pvc GLv‡b FYvZ¥K| d‡j bKj f¨vKyqvg av°v ‡`q bv, eis Uv‡b| FYvZ¥K Pvc ‰Zwi K‡i FYvZ¥K gnvKl©xq Uvb| gv‡b A¨vw›UMª¨vwfwU| d‡j bKj f¨vKyqv‡gi gnvKl© wb‡q kw³i AvKl©Yag©x I Pv‡ci weKl©Yag©x c«fv‡ei g‡a¨ Zxe« c«wZ‡hvwMZv P‡j| wRZ nq Pv‡ciB| Ges weKl©‡Yi wbU c«fve GZ ‡ewk ‡h GwU gyn~‡Zi« g‡a¨ gnvwek¦‡K Dwo‡q w`‡Z cv‡i| ùxwZi Ggb Zxe« av°vi d‡jB gnvwek¦ c«wZ 10-34 ‡m‡K‡Ûi g‡Zv ¶y`« mg‡q c«PÊ MwZ‡Z wØ¸Y eo n‡qwQj|

bKj f¨vKyqvg mnRvZfv‡e Aw¯’wZkxj| mKj D‡ËwRZ ‡Kvqv›Uvg ‡÷‡Ui g‡Zv GwUI ¶q n‡q M«vDÛ ‡÷‡U, gv‡b c«K…Z f¨vKyqv‡g Avm‡Z Pvq| m¤¢eZ K‡qK WRb ÔwUKÕ cvi n‡j GwU GUv Ki‡Z m¶g nq| ‡Kvqv›Uvg c«wµqv nevi Kvi‡Y Gi g‡a¨ Awbevh©fv‡e KvR K‡i AwbðqZv I ‰`e cwieZ©b, ‡hUv GKUy Av‡M nvB‡Rbev‡Mi« AwbðqZv bxwZi K\_v ej‡Z wM‡q Av‡jvPbv Kiv n‡q‡Q| Zvi gv‡b, ¯’v‡bi me w`‡K ¶q GKB nv‡i NU‡e bv| wewfbœ w`‡K Zv n‡e Avjv`vfv‡e| wKQy wKQy ZvwË¡‡Ki g‡Z ‡Kve (COBE) ‡h e¨wZµg Lyu‡R ‡c‡q‡Q Zvi KviY GB wfbœZv Qvov Avi wKQyB bq|

bKj f¨vKyqvg ¶q n‡q ‡M‡j gnvwek¦ Zvi ¯^vfvweK c«mviY ïi“ Kij| gv‡b ax‡i ax‡i Kgj c«mvi‡Yi nvi| bKj f¨vKyqv‡g Ave× kw³ Aegy³ n‡jv| GUv ‡ei n‡jv Zvc AvKv‡i| ùxwZi Kvi‡Y ‡h wekvj c«mviY NUj, Zv‡Z gnvwe‡k¦i ZvcgvÎv cig k~‡b¨i Lye KvQvKvwQ n‡jv| nVvr ùxwZ ‡\_‡g hvIqvq ZvcgvÎv Avevi ‡e‡o 1028 wWwM« n‡q ‡Mj| GB wecyj Zvc AvRI i‡q ‡M‡Q| Aek¨ ‡mUvi Zxe«Zv A‡bK K‡g ‡M‡Q| GiB bvg gnvRvMwZK cUf~wg Zvc wewKiY| f¨vKyqvg GbvwR© Aegy³ nevi cvkvcvwk Av‡iKwU NUbvI NUj| ‡Kvqv›Uvg f¨vKyqv‡gi A‡bK¸‡jv KYv G ‡\_‡K wKQy kw³ M«nY K‡i ev¯—e KYvq DbœxZ n‡jv| AviI wKQy c«wµqv I cwieZ©b ‡k‡l GB Avw`g KYv¸‡jvi aŸsmve‡kl ‡\_‡K 1050 Ub c`v\_© ‰Zwi n‡jv| GB c`v\_© ‡\_‡KB Avcwb, Avwg, Qvqvc\_ I gnvwe‡k¦i evwKUvi m…wó|

eo eo A‡bK Km‡gvjwR÷B g‡b K‡ib ùxwZi aviYvB gnvwe‡k¦i BwZnv‡mi mwZ¨Kvi wPÎ c«`vb K‡i| hw` GwU Avm‡jB mwVK n‡q \_v‡K, Zvn‡j gnvwe‡k¦i ‡gŠwjK KvVv‡gv Ges ‡fŠZ Dcv`vbmg~n ‡Kgb n‡e Zv wVK n‡q wM‡qwQj R‡b¥i gvÎ 10-32 ‡m‡KÛ c‡iB| ùxwZi c‡i gnvwe‡k¦i AwZcvigvYweK ¯—‡i N‡UwQj AviI bvbvb cwieZ©b| c«v\_wgK c`v\_© ‡\_‡K ‰Zwi n‡jv KYv I cigvYy| Avgv‡`i mg‡qi gnvRvMwZK e¯—y¸‡jv G‡`i w`‡qB Mov| Z‡e c`v‡\_i« AwaKvsk evowZ c«wµqvKiY m¤úbœ n‡qwQj gvÎ c«vq wZb wgwb‡Ui g‡a¨|

c«\_g wZb wgwb‡Ui mv‡\_ ‡kl wZb wgwb‡Ui m¤úK© Kx? GKwU ey‡j‡Ui fvM¨ ‡hgb Gi j¶¨gvÎvi Ici Lye ‡ewk wbfi« K‡i, ‡Zgwb gnvwe‡k¦i cwiYwZI Gi c«v\_wgK Ae¯’vi Ici `vi“Yfv‡e wbfi«kxj| Avgiv mvg‡b ‡`Le, c«v\_wgK m~Pbv ‡\_‡K gnvwe‡k¦i c«mviY I weM e¨vs ‡\_‡K D™¢~Z c`v‡\_i« c«K…wZ gnvwe‡k¦i P~W়vš— fwel¨r‡K Kxfv‡e c«fvweZ K‡i| gnvwe‡k¦i ïi“ I ‡kl GKB my‡Zvq ‡Mu‡\_ Av‡Q k³fv‡e|

Abyev`‡Ki ‡bvU:

2. ‡Kv‡bv e¯—y `~‡i m‡i ‡M‡j ‡mwU ‡\_‡K Avmv Av‡jvi is jvj n‡q hvIqv‡KB ‡jvwnZ miY e‡j| c«‡Z¨K is‡qi Av‡jvi wbw`©ó cvj­vi Zi½‰`N¨© \_v‡K| e¯—y `~‡i m‡i ‡M‡j AvMZ Av‡jvi K¤úv¼ K‡g hvq I Zi½‰`N¨© ‡e‡o hvq| Avi `…k¨gvb Av‡jv¸‡jvi g‡a¨ jv‡ji Zi½‰`N¨©B me‡P‡q eo| ZvB `~‡i hvIqv e¯—y‡K jvj ‡`Lvq| GiB bvg ‡jvwnZ miY|

3. me©‡kl wnmve g‡Z gnvwe‡k¦i c«mviY nvi c«wZ ‡m‡K‡Û c«wZ ‡gMvcvi‡m‡K 74 wK‡jvwgUvi| GK cvi‡mK n‡jv 3.3 Av‡jvKe‡li« mgvb| Avi ‡gMvcvi‡mK cvi‡m‡Ki 10 j¶ ¸Y| AZGe c«mvi‡Yi nviwUi A\_© n‡jv Avgv‡`i ‡\_‡K c«wZ 3.3 ‡gMvcvi‡mK ev 33 j¶ AvjKel© `~‡ii GKwU Qvqvc\_‡K Avgiv c«wZ ‡m‡K‡Û 74 wK‡jvwgUvi ‡ewk ‡Rv‡i mi‡Z ‡`Le|

4. ‡h e¯—y Zvi Ici AvMZ mKj wewKiY ‡kvlY K‡i ‡bq Zv‡K K…òe¯—y e‡j| Ab¨vb¨ e¯—yi mv‡\_ Zyjbv Kivi R‡b¨ wbQK GKwU ZvwË¡K bgybv GwU| c«K…wZ‡Z wbLyuZ K…òe¯—yi Aw¯—Z¡ ‡bB|

5. c`v\_©weÁv‡b c­vRgv‡K ejv nq c`v‡\_i« PZy\_© Ae¯’v| G Ae¯’vq M¨vm \_v‡K AvqwbZ Ae¯’vq| gv‡b cigvYy‡Z B‡jKU«b I ‡c«vUb msL¨v mgvb \_v‡K bv| GB Ae¯’vq c`v\_© Lye Zwor mycwievnx nq| Ges ‡m Kvi‡Y Zwor I Py¤^Kxq AvPi‡Yi c«vavb¨ \_v‡K|

6. ‡c«vUb I wbDU«b Aek¨ wVK ‡gŠwjK KwYKv bq, MwVZ ‡KvqvK© w`‡q|

7. nv‡B«Wv‡R‡bi me‡P‡q mij iƒcwU‡Z GKwUgvÎ ‡c«vUb \_v‡K| ‡Kv‡bv wbDU«b \_v‡K bv|

8. 2 wU ‡c«vUb m¤^wjZ nvB‡W«vR‡bi Av‡iKwU iƒc|

9. kw³i msi¶YkxjZv bxwZ Abymv‡i, gnvwe‡k¦i ‡gvU kw³i cwigvY wbw`©ó| kw³i m…wó ev webvk ‡bB| G‡K ‡Kej GK iƒc ‡\_‡K Ab¨ GK ev GKvwaK iƒ‡c iƒcvš—wiZ Kiv ‡h‡Z cv‡i|

10. gv‡b cigvYyi K¶c‡\_| mvaviY `…wó‡KvY ‡\_‡K fve‡j cigvYyi ‡K›`«xq Ae¯’v‡bi wbDwK¬qv‡mi Pviw`‡Ki wewfbœ K¶c‡\_ B‡jKU«b¸‡jv ew›UZ \_v‡K|

11. GKwU Av‡cj‡K GK wgUvi D”PZvq Zyj‡j ‡gvUvgywU GK Ryj cwigvY kw³ LiP nq| Ab¨fv‡e ej‡j, 100 Ryj kw³ w`‡q 20 Iqv‡Ui GKwU evwZ 5 ‡m‡KÛ Pvjv‡bv hvq| Gevi wPš—v Ki“b Zvn‡j 1087 Ryj KZ wekvj|

12. G‡b ivL‡Z n‡e, kw³ wKš‘ f‡iiB Av‡iK iƒc| ZvB kw³iI gnvKl©xq Uvb \_vK‡e|

PZy\_© Aa¨vq

b¶‡Îi g…Z¨y

1987 mv‡ji ‡de«yqvwi gv‡mi 23 wK 24 ZvwiL iv‡Zi K\_v| KvbvwWqvb ‡R¨vwZwe©` Bqvb ‡kjUb KvR KiwQ‡jb jvm K¨v¤úvbvm ch©‡e¶Y‡K‡›`«| RvqMvUv wPjxq Avw›`‡Ri P~ovq| GKRb ‰bk mnKvix wKQy mg‡qi R‡b¨ evB‡i G‡jb| Ajm ‡Pv‡L ZvKv‡jb AvKv‡kj w`‡K| iv‡Zi AvKvk Zvi bL`c©‡Y| d‡j A¯^vfvweK `…k¨Uv ‡Pv‡L co‡Z mgq jvMj bv| jvR© g¨v‡RjvwbK K¬vDW M¨vjvw·i bxnvwiKvi `v‡Mi c«v‡š— GKwU bZyb b¶Î| D¾¡jZv AZ ‡ewk bq| Kvjcyi“‡li ‡Kvgie‡Üi (Orion belt) ZviKv¸‡jvi KvQvKvwQ D¾¡j| me‡P‡q eo K\_v n‡jv, Av‡Mi w`b b¶ÎUv ILvbUvq wQj bv|

mnKvix mv‡ne e¨vcviUv ‡kjUb‡K ej‡jb| K‡qK NÈvi g‡a¨ LeiUv ivó« n‡q ‡Mj| ‡kjUb Avi Zvi wPjxq mnKvwi GKwU mycvi‡bvfv Avwe®‹vi K‡i ‡d‡j‡Qb| 1604 mv‡j ‡Rvnv‡bm ‡KcjviI Lvwj ‡Pv‡L GKwU mycvi‡bvfv ‡`‡LwQ‡jb| Zvic‡i Lvwj ‡Pv‡L GB c«\_g Avevi ‡Kv‡bv mycvi‡bvfv aiv coj| Gi ciciB ‡ek K‡qKwU ‡`‡ki ‡R¨vwZwe©`iv jvR© g¨v‡RjvwbK K¬vD‡Wi ‡cQ‡b hš¿cvwZ Kv‡R jvMv‡Z ïi“ Ki‡jb| c‡ii gvm¸‡jv‡Z 1987G bv‡gi mycvi‡bvfvwUi LyuwUbvwU Lye m~²fv‡e we‡k­lY Kiv n‡jv|

‡kjU‡bi PvÂj¨Ki Avwe®‹v‡ii K‡qK NÈv Av‡M wfbœ GKwU RvqMvq Av‡iKwU A¯^vfvweK NUbv wjwce× nw”Qj| G RvqMvUv Rvcv‡b| f~wgi A‡bKUv Mfx‡i KvwgIKv `¯—v Lwb| GK eyK ¯^cœ wb‡q wKQy c`v\_©we` GLv‡b GK `xN©‡gqv`x cix¶v Pvjvw”Q‡jb| Zvu‡`i j¶¨ wQj e¯—yi Ab¨Zg ‡gŠwjK Dcv`vb ‡c«vUb KwYKvi P~W়vš— w¯’wZkxjZv cix¶v Kiv| 1970 Gi `k‡K iwPZ Mª¨vÛ BDwbdv‡qW w\_Iwi Abymv‡i ‡c«vUb Lye Aw¯’wZkxj n‡Z cv‡i, hv GK ai‡bi ‡ZRw¯ŒqZvi d‡j mgq mgq ¶q n‡q \_vK‡Z cv‡i| GUv mwZ¨ n‡j gnvwe‡k¦i fwel¨Z wba©vi‡Y Gi ¸i“Z¡c~Y© f~wgKv \_vK‡e| GUv Avgiv c‡ii Aa¨v‡q ‡`Le|

‡c«vU‡bi ¶q cix¶vi R‡b¨ Rvcv‡bi cix¶Kiv GKwU U¨vsK‡K 2000 Ub AwZweï× cvwb w`‡q c~Y© Ki‡jb| Gi Pvicv‡k ivL‡jb D”P-ms‡e`bkxj ‡dvUb wW‡UKUi| wW‡UKU‡ii KvR wQj Av‡jvi SjK Lyu‡R ‡ei Kiv| GLv‡b Ggb Av‡jv ïay D”P MwZi ‡c«vUb ¶‡qi gva¨‡gB Avm‡Z cv‡i| cix¶vi R‡b¨ f~wgi Mfx‡ii ¯’vb ‡e‡Q ‡bIqv n‡qwQj gnvRvMwZK wewKi‡Yi c«fve Kgv‡bvi R‡b¨| Ab¨\_vq Ac«Z¨vwkZ m‡¼Z ‡c‡Z ‡c‡Z AKvh©Ki n‡q IVZ wW‡U±i|

‡de«yqvwii 22 ZvwiL| nVvr K‡i KvwgIKv wW‡U±i¸‡jv GMv‡iv ‡m‡K‡Ûi e¨eav‡b Aš—Z mgvb msL¨K m‡¼Z w`j| Gw`‡K c…w\_exi Ab¨ c«v‡š— InvB‡qvi më gvB‡b GKB iKg GKwU wW‡U±‡i aiv coj AvUwU m‡¼Z| GK mv‡\_ GZ¸‡jv ¶q n‡q hv‡e GUv G‡Kev‡iB Awek¦vm¨| Aek¨B Ab¨ ‡Kv‡bv e¨vL¨v \_vK‡e Gi| c`v\_©we`iv kxN«B ‡m e¨vL¨vUv ‡c‡qI ‡M‡jb| Zvu‡`i wW‡U±‡i aiv cov ‡c«vUb ¶‡qi KviY Ab¨ GKwU ¯^vfvweK c«wµqv| ‡mUv n‡jv wbDwU«‡bvi AvNvZ|

wbDwU«‡bviv GK ai‡bi AwZcvigvYweK KYv| mvg‡bI G‡`i K\_v AviI Avm‡e| ZvB GLbB LvwbKUv we¯—vwiZ ‡R‡b ‡bIqv `iKvi| 1931 mv‡j DjdM¨vs cvDwj c«\_g G‡`i Aw¯—‡Z¡i aviYv ‡`b| G ZvwË¡K c`v\_©we‡`i Rb¥ Aw÷«qvq| ‡ZRw¯Œq c«wµqvi ‡eUv ¶q bvgK A¯úó w`KwU e¨vL¨vi R‡b¨ G aviYv ‡`b wZwb| GKwU mvaviY ‡eUv ¶q c«wµqvq GKwU wbDU«b ‡f‡O wM‡q GKwU ‡c«vUb I GKwU B‡jKU«b DZ&cbœ nq| B‡jKU«b A‡c¶vK…Z nvjKv KYv n‡jI D‡j­LL‡hvM¨ cwigvY kw³ mv‡\_ wb‡q ‡ei n‡q hvq| wKš‘ mgm¨v n‡jv c«wZwU ¶q c«wµqvq B‡jKU«b wfbœ wfbœ cwigvY kw³ wb‡q ‡ei nq| wbDU«‡bi ¶q ‡\_‡KI c«vß ‡gvU kw³ ‡\_‡KI wKQyUv Kg| ‡h‡nZy me ‡¶‡ÎB ‡gvU kw³i cwigvY a«ye, g‡b n‡”Q P~W়vš— kw³ c«v\_wgK kw³ ‡\_‡K Avjv`v| GUv nevi K\_v bq| KviY, kw³ msiw¶Z \_vK‡e- GUv c`v\_©we`¨vi GKwU ‡gŠwjK bxwZ| ZvB cvDwj c«¯—ve Ki‡jb, H nviv‡bv kw³UyKy Ab¨ ‡Kv‡bv A`…k¨ KYv wb‡q P‡j hv‡”Q| KYvwU‡K kbv‡³i c«v\_wgK ‡Póv mdj nqwb| GUv Rvbv n‡q ‡M‡j ‡h GB KYv‡`i Aw¯—Z¡ \_vK‡jI ‡f`b¶gZv n‡e AZ¨waK| Avgiv Rvwb, ‰e`¨ywZKfv‡e PvR©hy³ ‡h‡Kv‡bv KYv e¯—y Øviv Ave× n‡e| d‡j cvDwji c«¯—vweZ KYvwU‡K Zwor c«kg n‡Z n‡e| ‡Kv‡bv PvR© \_vK‡e bv) GR‡b¨B Gi bvg ‡`Iqv n‡jv wbDwU«‡bv| (wbDU«vj (neutral) A\_©B c«kg)

‡m mgq ‡KD wbDwU«‡bvi ‡`Lv bv ‡c‡jI ZvwË¡Kiv Gi AviI A‡bK¸‡jv ‰ewkó¨ ‡R‡b ‡Mjb| GKwU ‰ewkó¨ n‡jv wbDwU«‡bvi fi wb‡q|

`ª“ZMvgx KwYKv‡`i ‡¶‡Î fi wb‡q GKUy mveav‡b K\_v ej‡Z nq| KviY, e¯—yi fi wbw`©ó bq| wbfi« K‡i ‡e‡Mi Ici| ‡hgb GK ‡KwR IR‡bi GKwU wmmvi e‡ji K\_v fvev hvK| GwU ‡m‡K‡Û 2 j¶ 60 nvRvi wK.wg. ‡e‡M Pj‡j Gi fi n‡q hv‡e 2 ‡KwR| GLv‡b bv‡Ui ¸i“ Avm‡j Av‡jvi ‡eM| ‡Kv‡bv e¯—yi ‡eM Av‡jvi ‡e‡Mi hZ Kv‡Q hv‡e, Zvi fi ZZ ‡ewk n‡e| f‡ii GB e…w×i ‡kl ‡bB ‡Kv‡bv| fi Gfv‡e e`‡j hv‡”Q e‡j weåvwš— Gov‡bvi j‡¶¨ AwZcvigvYweK KYv‡`i fi ejvi mgq c`v\_©we`iv wbðj f‡ii K\_v e‡jb| KYvwU Av‡jvi KvQvKvwQ ‡e‡M ågY Ki‡j Gi c«K…Z fi wbðj f‡ii eû¸Y n‡q ‡h‡Z cv‡i| KYv Z¡iKh‡š¿i ‡fZi c«`w¶YiZ B‡jKU«b I ‡c«vUb‡`i fi Zv‡`i wbR wbR wbðj f‡ii eû¸YI n‡Z cv‡i|

wbDwU«‡bvi wbðj fi Rvbvi Dcvq GKwU Av‡Q Aek¨| A‡bK ‡¶‡Î ‡eUv ¶q c«wµqvi mgq B‡jKU«b wbM©Z n‡ZB cy‡iv kw³ e¨q n‡q hvq| wbDwU«‡bvi R‡b¨ wKQyB evwK \_v‡K bv| Zvi gv‡b Awbevh©fv‡eB wbDwU«‡bv‡K wU‡K \_vK‡Z nq ‡Kv‡bv kw³ QvovB| GLb, AvBb÷vB‡bi weL¨vZ E = mc2 m~Î Abymv‡i fi Ges kw³ mgZyj¨| Zvi gv‡b, kw³ ‡bB gv‡b fiI ‡bB| Zvi A\_© `vuovq, m¤¢eZ wbDwU«‡bvi wbðj fi Lye Aí| k~b¨I n‡Z cv‡i| wbðj fi mwZ¨B k~b¨ n‡j wbDwU«‡bv Pj‡e Av‡jvi MwZ‡Z| Avi Zv bv n‡jI Gi ‡eM Av‡jvi ‡e‡Mi Lye KvQvKvwQB n‡e|

AwZcvigvYweK KwYKv‡`i N~Y©‡bi mv‡\_ Av‡iKwU welqI RwoZ Av‡Q| wbDU«b, ‡c«vUb I B‡jKU«b mevB‡K me mgq Nyi‡Z ‡`Lv hvq| N~Y©‡bi gvÎv wbw`©ó| Ges wZbwUi ‡¶‡ÎB gvÎvUv mgcwigvY| N~Y©b n‡jv GK ai‡bi ‡KŠwYK fi‡eM| ‡KŠwYK fi‡e‡Mi msi¶YkxjZv bv‡g GKwU m~Î Av‡Q| kw³i msi¶YkxjZv bxwZi g‡ZvB GwUI GKwU ‡gŠwjK m~Î| GKwU wbDU«b ¶q n‡j ¶q nIqv As‡kI Gi N~Y©b AweK…Z \_vK‡e| B‡jKU«b Avi ‡c«vUb hw` GKB w`‡K ‡Nv‡i, Z‡e Zv‡`i N~Y©‡bi ‡hvMdj n‡e wbDU«‡bi N~Y©‡bi wØ¸Y| Z‡e Zviv hw` wfbœ w`‡K ‡Nv‡i, ‡m‡¶‡Î ‡hvMdj n‡e k~b¨| NUbv hvB ‡nvK, GKwU ‡c«vUb ev GKwU B‡jKU«b GKv wbDU«‡bi mgvb n‡Z cv‡i bv| wKš‘ wbDwU«‡bvi K\_v wnmv‡e ai‡j fvimvg¨ nq| ïay a‡i wb‡Z n‡e wbDwU«‡bvi N~Y©‡bi gvÎvI Ab¨‡`i g‡Zv| ‡m‡¶‡Î ¶qK…Z wZbwU As‡ki `y‡Uv Nyi‡e GKB w`‡K, Avi Z…ZxqwU D‡ëvw`‡K|

d‡j wbDwU«‡bv kbv³ nevi Av‡MB c`v\_©we`iv ey‡S ‡dj‡jb, GB KYvi ‰e`¨ywZK PvR© \_vK‡e bv| Nyi‡e B‡jKU«‡bi g‡Zv GKB w`‡K| fi \_vK‡e bv ev \_vK‡jI ‡mUv n‡e ¯^í cwigvY| mvaviY e¯—yi mv‡\_ wg\_wl&µqv Ki‡e GZB `ye©jfv‡e ‡h Zvi ‡Kv‡bv j¶YB ‡Pv‡L co‡e bv| GK K\_vq, GwU GK ai‡bi Nyiš— f~Z| d‡j GUv LyeB ¯^vfvweK ‡h cvDwji Abygv‡bi c‡i cix¶vMv‡i Gi Aw¯—Z¡ wbwðZ K‡i c«gvY Ki‡Z c«vq wek eQi ‡j‡M ‡M‡Q| eZ©gv‡b wbDK¬xq Pywj­‡Z Giv msL¨vq msL¨vq ‰Zwi nq| d‡j jyKv‡bv ¯^fv‡ei n‡jI gv‡Sgv‡SB G‡`i‡K kbv³ K‡i ‡djv hvq|

GKB mv‡\_ KvwgIKv Lwb‡Z wbDwU«‡bvi nvbv Ges 1987G mycvi‡bvfvi Avwef©ve ‡Kv‡bvg‡ZB KvKZvjxq NUbv wQj bv| weÁvbx‡`i g‡Z `y‡Uv NUbv GKB mv‡\_ NUvi g‡a¨ mycvi‡bvfv Z‡Ë¡i c«gvY i‡q‡Q| GZ w`b a‡i ‡R¨vwZwe©Ávbxiv ‡Zv mycvi‡bvfv ‡\_‡KB GK SvuK wbDwU«‡bv Avmvi c«Z¨vkv KiwQ‡jb|

jvwZb fvlvq ‡bvfv gv‡b bZyb| Z‡e 1987G bv‡gi mycvi‡bvfvwU bZyb ‡Kv‡bv b¶‡Îi Rb¥ wQj bv| GwU Avm‡j wQj e…nr we‡ùvi‡Yi gva¨‡g cyivZb GK b¶‡Îi g…Z¨y| mycvi‡YvfvwUi DZ&m jvR© g¨v‡RjvwbK K¬vDW GKwU ¶y`« Qvqvc\_| `~iZ¡ 1 j¶ 70 nvRvi Av‡jvKel©| GwU Avgv‡`i wgwéI‡q Qvqvc‡\_i GZUvB Kv‡Q ‡h GwU A‡bKUv wgwéI‡qi DcQvqvc\_ (satellite gallaxy)| `w¶Y ‡Mvjva© ‡\_‡K G‡K Lvwj ‡Pv‡LI ‡`Lv hvq| ‡Qvc ‡Qvc Av‡jvi GKwU `vM| b¶Î¸‡jv‡K Avjv`v K‡i ‡`L‡Z n‡j PvB eo ‡Uwj‡¯‹vc| ‡kë‡bi Avwe®‹v‡ii K‡qK NÈvi g‡a¨B A‡÷«jxq ‡R¨vwZwe©`iv ‡R‡b ‡dj‡jb, jvR© g¨v‡RjvwbK K¬vD‡Wi K‡qK k ‡KvwU b¶‡Îi g‡a¨ ‡KvbwU G we‡ùviY NwU‡q‡Q| GUv Kivi R‡b¨ Zvuiv AvKv‡ki H As‡ki Av‡Mi wKQy d‡UvM«vwdK ‡c­U e¨envi K‡ib| b¶ÎwU wQj we3 mycviRvqv›U ‡k«wYi1| GwU m~‡hi« Zyjbvq PIov wQj 40 ¸Y| bvgI Av‡Q GKwU| m¨vÛywjK-69 202 (Sanduleak -69 202)|

b¶‡Îi we‡ùviY NU‡Z cv‡i, GB welq wb‡q c«\_g M‡elYv Pvjvb ‡R¨vwZ©c`v\_©we` ‡d«W n‡qj, DBwjqvg dyjvi Ges ‡Rwd« I gviMv‡iU eviweR| GUv 1950 Gi `k‡Ki gvSvgvwSi K\_v| Ggb DËvj `kvq b¶Îiv Kx K‡i ‡cŠuQvq Zv Rvb‡Z n‡j eyS‡Z n‡e G‡`i ‡fZ‡i Pjv c«wµqv¸‡jv| Avgv‡`i me‡P‡q ‡PbvRvbv b¶Î n‡jv m~h©| Ab¨ b¶‡Îi g‡ZvB ‡`‡L g‡b n‡”Q m~‡h© ‡Kv‡bv cwieZ©b ‡bB| Avm‡j wKš‘ m~h© c«wZwbqZ g…Z¨yi mv‡\_ msM«vg K‡i hv‡”Q| me b¶ÎB M¨vm w`‡q ‰Zwi| GB M¨vm Romo \_v‡K gnvK‡li« Kvi‡Y| Z‡e hy×‡¶‡Î gnvKl© GKv \_vK‡j b¶ÎwU wb‡Ri Zxe« AvKl©‡Y wb‡g‡li g‡a¨ ¸wU‡q ‡hZ| DavI n‡q ‡hZ K‡qK NÈvi g‡a¨| wKš‘ ‡mUv nq bv| KviY ‡fZ‡ii w`‡Ki GB e‡ji wecix‡Z evB‡ii w`‡K KvR K‡i Av‡iKwU ej| b¶‡Îi Af¨š—‡ii m¼ywPZ M¨v‡mi ewng©yLx Pvc| `y‡Uv‡Z ‰Zwi nq fvimvg¨|

M¨v‡mi Pvc I ZvcgvÎvi g‡a¨ GKwU mij m¤úK© Av‡Q| mvaviYZ GKwU wbw`©ó AvqZ‡bi M¨vm‡K DËß Ki‡j ZvcgvÎvi Abycv‡Z Gi Pvc ev‡o| Avevi ZvcgvÎv Kg‡j K‡g hvq PvcI| b¶‡Îi ‡fZ‡i Zxe« Pv‡ci KviY Gi Zxe« ZvcgvÎv| eû wgwjqb wWwM« ‡mjwmqvm| GB Zv‡ci DZ&m n‡jv wbDK¬xq wewµqv| b¶‡Îi Rxe‡bi ‡ewkifvM mgq Ry‡o GKwU wewµqvB P‡j| ‡mUv n‡jv wdDkb (ms‡hvRb) wewµqvi gva¨‡g nvB‡W«v‡Rb‡K wnwjqv‡g iƒcvš—i| cigvYy¸‡jvi wbDwK¬qv‡mi B‡jKU«biv ci¯úi‡K weKl©Y K‡i| d‡j GB weKl©Y‡K civf~Z Ki‡Z wewµqvi ZvcgvÎv n‡Z nq c«PÊ| wdDk‡bi kw³ GKwU b¶Î‡K K‡qK k ‡KvwU eQi wUwK‡q ivL‡Z cv‡i| wKš‘ GK w`b bv GK w`b R¡vjvwb wVKB dywi‡q Av‡m| `ye©j n‡q c‡o wewµqvi MwZ| Gevi ewng©yLx Pvc `ye©j n‡q c‡o| wR‡Z hvq gnvKl©| b¶ÎwU Zvi Aewkó R¡vjvwb w`‡q gnvKl©RwbZ Aš—:‡ùvUb (‡fZ‡ii w`‡K ¸wU‡q hvIqv) c«wZnZ K‡i Av‡iKUy mgq ‡eu‡P \_v‡K| wKš‘ c…ô ‡\_‡K c«wZevi gnvk~‡b¨ kw³ wbw¶ß nevi mv‡\_ mv‡\_ Awš—g mgq `ª“Z Nwb‡q Avm‡Z \_v‡K|

wnmve K‡i ‡`Lv ‡M‡Q, ‡h cwigvY nvB‡W«v‡Rb wb‡q m~‡hi« c\_ Pjv ïi“ n‡q‡Q Zv‡Z Zvi c«vq GK nvRvi ‡KvwU eQi R¡jvi K\_v| GLb eqm cvuP k ‡KvwU eQi| gv‡b c«vq A‡a©K R¡vjvwb ‡kl| (GLbI f‡qi wKQy ‡bB) GKwU b¶Î Kx nv‡i wbDK¬xq R¡vjvwb LiP Ki‡e Zv wbfi« K‡i Gi f‡ii Ici| fvix b¶Îiv R¡vjvwb LiP K‡i A‡bK `ª“Z| Zv bv K‡i ‡h Dcvq ‡bB| Giv eo Ges D¾¡j| d‡j wewKiY K‡i ‡ewk cwigvY kw³| evowZ IR‡bi Kvi‡Y M¨v‡mi NbZ¡ I ZvcgvÎv hvq ‡e‡o| d‡j ‡e‡o hvq wdDk‡bi nvi| ‡hgb 10 ‡mŠi f‡ii GKwU b¶Î Gi ‡ewkifvM nvB‡W«v‡Rb gvÎ GK ‡KvwU eQ‡iB ‡kl K‡i ‡dj‡Z cv‡i|

Ggb fvix GKwU b¶‡Îi fwel¨r ‡Kgb n‡Z cv‡i ‡`Lv hvK| ‡ewkifvM b¶‡Îi Rxeb ïi“ nq g~jZ nvB‡W«v‡Rb w`‡q| nvB‡W«v‡Rb wbDwK¬qvm gv‡b ‡Kej GKwU ‡c«vUb| nvB‡W«v‡R‡bi Ô`nbÕ2 c«wµqvq `y‡Uv nvB‡W«v‡Rb wbDwK¬qvm hy³ n‡q wnwjqvg ‡gŠ‡ji wbDwK¬qvm MwVZ nq| Gi c«wZwU‡Z \_v‡K `ywU K‡i ‡c«vUb I wbDU«b| (Gi we¯—vwiZ e¨vL¨v GKUy RwUj Avi ‡mUv Avgv‡`i AvcvZZ `iKviI ‡bB) wbDK¬xq kw³i m‡e‡Pq Kvh©Kix DZ&m n‡jv nvB‡W«v‡Rb Õ`nbÕ| Z‡e GUvB GKgvÎ DZ&m bq| Af¨š—ifv‡Mi ZvcgvÎv h‡\_ó ‡ewk n‡j wnwjqvg wbDwK¬qvm hy³ n‡q Kve©b MVb Ki‡Z cv‡i| ZviI c‡i wdDk‡bi gva¨‡g Aw·‡Rb, wbqb I Ab¨vb¨ ‡gŠj ‰Zwi nq| G‡Ki ci GK wbDK¬xq wewµqv Pvwj‡q hvIqvi g‡Zv c«‡qvRbxq Af¨š—ixY ZvcgvÎv DZ&cbœ Kivi KvR fvix b¶Îiv Ki‡Z cv‡i| gv‡S gv‡S ‡m ZvcgvÎv GK k ‡KvwUi Ic‡iI nq|

wKš‘ kw³ ax‡i ax‡i Kg‡Z \_v‡K| c«wZwU bZyb ‡gŠj ‰Zwii mv‡\_ mv‡\_ wbM©Z kw³i cwigvY n«vm ‡c‡Z \_v‡K| R¡vjvwb `ª“Z ‡\_‡K `«ZZi LiP n‡Z \_v‡K| b¶‡Îi Dcv`vb e`‡j ‡h‡Z \_v‡K| ïi“‡Z c«wZ gv‡m, c‡i c«wZ w`b Ges ‡kl‡gl c«wZ NÈvq| Af¨š—ifvM `vuovq ‡cuqv‡Ri g‡Zv| GLv‡b ¯—i¸‡jv n‡j DËvj c«wµhvq µ‡g µ‡g M‡o IVv ivmvqwbK ‡gŠj¸‡jv| evB‡ii w`‡K Avevi b¶ÎwU dy‡j-‡du‡c eo n‡q hvq| n‡q hvq Avgv‡`i cy‡iv ‡mŠiRM‡Zi ‡P‡qI eo| G‡KB ‡R¨vwZwe©`iv e‡jb ‡jvwnZ AwZ`vbe (red supergiant)|

wbDK¬xq `nb c«wµqvi BwZ N‡U ‡jvnv ‰Zwii gva¨‡g| Gi wbDK¬xq MVbUv ‡ek w¯’wZkxj| wbDK¬xq wdDk‡bi gva¨‡g ‡jvnvi ‡P‡q fvix ‡gŠj MwVZ n‡Z b¶‡Îi wb‡RiB kw³ avi Ki‡Z nq| wbM©Z Kiv ‡Zv c‡ii K\_v| d‡j ‡jvnv ‰Zwi n‡q ‡M‡Q gv‡b GKwU b¶‡Îi GLv‡bB mgvwß| ‡K›`«xq AÂj hLb Avi Zvc DZ&cœb Ki‡Z bv cvi‡e, `vevi ¸wU P‡j hv‡e gnvK‡li« nv‡Z| b¶ÎwU n‡q c‡o Pigfv‡e fvimvg¨nxb| cwZZ nq wbR¯^ gnvKl©xq M‡Z©|

c‡ii NUbv Lye `ª“Z N‡U| b¶‡Îi ‡jvnvq Mov ‡K›`« wbDK¬xq `n‡bi gva¨‡g Avi ‡Kv‡bv Zvc DZ&cv`b Ki‡Z cv‡i bv| d‡j a‡i ivL‡Z e¨\_© nq wb‡Ri IRb| GZ `ª“Z ¸wU‡q hvq ‡h cigvYy¸‡jv ch©š— `yg‡o-gyP‡o hvq| ‡kl ch©š— ‡K‡›`«i NbZ¡ GZ ‡e‡o hvq ‡h GKwU AvO&¸‡ji gv\_vq ‡h cwigvY c`v\_© AvuuU‡e ‡mUvB c«vq GK j¶ ‡KvwU Ub| G `kvq b¶ÎwUi ‡K›`«gÊ‡ji e¨vm nq gvÎ `yB k wK‡jvwgUvi| wbDK¬xq c`v‡\_i« KvwV‡b¨i d‡j GwU jvdvjvwd Ki‡e| gnvKl© GZ kw³kvjx ‡h GB wekvj NUbv NU‡Z mgq jvM‡e K‡qK wgwj‡m‡KÛ| ‡K‡›`« ‡hb bvU‡Ki ‡Kv‡bv ‡kl ‡bB| AvKw¯§Kfv‡e Zxe« Av‡jvo‡bi gva¨‡g bv¶wÎK c`v‡\_i« Avkcv‡ki ¯—i¸‡jv G‡m cwZZ nq ‡K›`«gÊ‡j| ‡m‡K‡Û AhyZ AhyZ ‡e‡M P‡j ‡fZ‡ii w`‡Ki GB MwZ| wU«wjqb wU«wjqb3 c`v\_© G‡m AvNvZ nv‡b Zxe« Nb ‡K›`«gÊ‡j| ‡K›`«gÊj nq nxivi ‡`qv‡ji ‡P‡qI `…p| Gici nq Zxe« msNl©| hvi d‡j evB‡ii w`‡K Qwo‡q c‡o GKwU kw³kvjx kK I‡qf|

kK I‡q‡fi mv‡\_ mv‡\_ wecyj cwigvY wbDwU«‡bvI wbM©Z nq| b¶‡Îi me©‡kl wbDK¬xq iƒcvš—‡ii mgq ‡fZ‡ii GjvKv ‡\_‡K AvKw¯§Kfv‡e ‡ei nq KYv¸‡jv| GB iƒcvš—‡ii c«v°v‡jB b¶‡Îi cigvYyi B‡jKU«b I ‡c«vUb wgwjZ n‡q MVb K‡i wbDU«b| d‡j b¶‡Îi ‡K›`«gÊj wbDU«‡bi GK wekvj ‡Mvj‡K cwiYZ nq| kK I‡qf I wbDwU«‡bviv ‡hŠ\_fv‡e b¶‡Îi evB‡ii ¯—i¸‡jvi w`‡K wecyj cwigvY kw³ cwienb K‡i| GB kw³ ‡kvlY K‡i b¶‡Îi evB‡ii ¯—i we‡ùvwiZ nq| GK fqven wbDK¬xq we‡ùviY| K‡qK w`b hveZ b¶ÎwU nvRvi ‡KvwU m~‡hi« Av‡jv wewKiY K‡i| K‡qK mßvn ci Avevi ax‡i ax‡i wb®ú«f n‡q ‡h‡Z \_v‡K|

wgwéI‡qi g‡Zv Av`k© M¨vjvw·¸‡jv‡Z c«wZ kZvãx‡Z `yB wK wZbwU mycvi‡bvfv ‡`Lv hvq| ‡R¨vwZwe©`iv we¯§qfiv ‡Pv‡L ‡m¸‡jv bw\_e× K‡i‡Qb| Gi g‡a¨ weL¨vZ GKwU ‡`Lv wM‡qwQj 1054 mv‡j| Pxbv I Avie ‡R¨vwZwe©`iv GwU ch©‡e¶Y K‡ib| Ae¯’vb wQj AvKv‡ki KK©U gÊjx‡Z| we`xY© ‡mB ZviKvwU‡K AvR c«mviYkxj M¨v‡mi ‡Quov ‡g‡Ni g‡Zv jv‡M| bvg Kª¨ve ‡beyjv ev KvuKov bxnvwiKv|

1987G mycvi‡bvfvi we‡ùvi‡Yi gva¨‡g gnvwe‡k¦ eû A`…k¨ wbDwU«‡bv Qwo‡q c‡o| GB wbtmi‡Yi Zxe«Zv wQj gvivZ¥K| c…w\_exi c«wZ eM© ‡mw›UwgUvi RvqMvq GK AhyZ ‡KvwU wbDwU«‡bv AvNvZ nv‡b| hw`I we‡ùviY¯’j ‡\_‡K c…w\_exi `~iZ¡ 1 j¶ 70 nvRvi Av‡jvKel©| Ab¨ GKwU Qvqvc\_ ‡\_‡K Avmv eû wU«wjqb KYv ‡h c…w\_exi gvby‡li kixi ‡f` K‡i P‡j ‡M‡Q Zv Zviv Rvb‡ZI cv‡iwb wKš‘ KvwgIKv I InvB‡qv ‡c«vUb-¶q wW‡U±i¸‡jv 19wU wbDwU«‡bv‡K a‡i ‡d‡j| GB e¨e¯’v bv \_vK‡j wbDwU«‡bv¸‡jv mevi ARv‡š— P‡j ‡hZ| ‡hgbwU wM‡qwQj 1054 mv‡j|

mycvi‡bvfv gv‡bB GKwU b¶‡Îi g…Z¨y| Z‡e we‡ùvi‡Yi GKwU fv‡jv w`KI Av‡Q| wecyj cwigvY kw³ Aegy³ nevi d‡j b¶‡Îi evB‡ii ¯—i¸‡jv DËß n‡q I‡V| DËvc GZ ‡ewk nq ‡h wKQy mg‡qi R‡b¨ AveviI wbDK¬xq wdDkb wewµqv n‡Z cv‡i| G wewµqv kw³ wbM©Z Kivi e`‡j ‡kvlY K‡i| me‡P‡q DËvj GB bv¶wÎK Pywj­‡ZB ‡jvnvi ‡P‡q fvix ‡gŠj¸‡jv c«¯—yZ nq| GB ‡hgb, ‡mvbv, wmmv, BD‡iwbqvg BZ¨vw`| Kve©b, Aw·‡R‡bi g‡Zv wbDK¬xq ms‡k­‡li c«v\_wgK ch©v‡q ‰Zwi nvjKv ‡gŠj¸‡jvi mv‡\_ mv‡\_ GB fvix ‡gŠj¸‡jvI gnvKv‡k wbw¶ß nq| wg‡k hvq Ab¨ mycvi‡bvfv‡`i wbw¶ß Ggb AmsL¨ c`v‡\_i« mv‡\_| cieZ©x mg‡q GB fvix c`v\_©¸‡jv bZyb c«R‡b¥i b¶Î I M«‡n cwiYZ nq| GB ‡gŠj¸‡jv c«¯—yZ ev wbw¶ß bv n‡j c…w\_exi g‡Zv ‡Kv‡bv M«n ‰Zwi nZ bv| c«vY ‰Zwii KvuPvgvj Kve©b I Aw·‡Rb, e¨vs‡K iw¶Z ‡mvbv, Qv‡`i wmmvi Av¯—i, wbDK¬xq Pywj­‡Z BD‡iwbqv‡gi iW—c…w\_exi GB me wKQy n‡q‡Q b¶Î‡`i Rxe‡bi wewbg‡q| Avgv‡`i m~‡hi« R‡b¥i Av‡MB hv‡`i Rxe‡bi BwZ N‡UwQj| fve‡ZB ‡Kgb jv‡M, Avgv‡`i kixi ‡h Dcv`vb w`‡q ‰Zwi Zv eû Kvj a‡i g…Z b¶‡Îi wbDK¬xq QvB w`‡q Mov|

mycvi‡bvfv we‡ùvi‡Y b¶Î m¤ú~Y© ‡kl n‡q hvq bv| Zygyj D‡ËRbvi ga¨ w`‡q ‡ewkifvM c`v\_© ‡ewi‡q ‡M‡jI m¼ywPZ ‡h ‡Kvi ev ‡K›`«gÊj H NUbvi m~ÎcvZ K‡iwQj, ‡mwU ‡\_‡K hvq wb‡Ri Ae¯’v‡bB| Z‡e Gi wbqwZI ‡h Kx n‡e ‡mUv wbw`©ó K‡i ejv m¤¢e bq| ‡Kv‡ii fi hw` Lye Kg nq, GB ai“b GK ‡mŠi fi, Zvn‡j GwU ‡QvU kn‡ii mvB‡Ri GKwU wbDU«‡bi ‡Mvj‡K cwiYZ n‡e| Lye m¤¢e GB wbDU«b b¶ÎwU Db¥Ëfv‡e Nyi‡Z \_vK‡e| m¤¢eZ c«wZ ‡m‡K‡Û 1000 evi| gv‡b Gi c…‡ô NyY©b ‡eM n‡e Av‡jvi ‡e‡Mi 10 kZvsk| Gi KviY n‡jv m‡¼vPb| hvi d‡j Aí N~Y©b wb‡q ïi“ nIqv b¶ÎwUI ‡Rv‡i Nyi‡Z \_v‡K| ei‡di Ici ‡¯‹wUs Kiv Ae¯’vq nvZ ¸wU‡q wb‡jI wVK GKB Kvi‡Y A‡c¶vK…Z ‡Rv‡i Nyiv hvq| Gfv‡e ‡Rv‡i AveZ©bkxj eû wbDU«b b¶Î ‡R¨vwZwe©`iv Lyu‡R ‡c‡q‡Qb| wKš‘ AveZ©b ax‡i ax‡i K‡g Av‡m| KviY, e¯—ywU kw³ nviv‡Z \_v‡K| ‡hgb KvuKov bxnvwiKvi ga¨Lv‡b Aew¯’Z wbDU«b b¶ÎwU GLb ‡m‡K‡Û gvÎ 33 evi Ny‡i|

Z‡e ‡Kv‡ii fi hw` Av‡iKUy ‡ewk nq, GB ai“b K‡qK ‡mŠi fi, Zvn‡j GwU wbDU«b n‡qB nvZ ¸wU‡q e‡m \_vK‡Z cv‡i bv| gnvKl© G‡¶‡Î A‡bK kw³kvjx| wbDU«b w`‡q Mov e¯—y eZ©gv‡b Rvbv me‡P‡q `…p e¯—y| wKš‘ GB wbDU«bI evowZ m‡¼vPb ‡VKv‡Z cv‡i bv| NUbv Mov‡Z \_v‡K AviI `vi“Y cwiYwZi w`‡K| mycvi‡bvfvi ‡P‡qI DËvj| b¶‡Îi ‡Kvi ¸wU‡q ‡h‡ZB \_v‡K| GK wgwj‡m‡K‡ÛiI Kg mg‡q GwU GKwU e­¨vK ‡nvj ev K…òMnŸi evwb‡q ‡d‡j| nvwi‡q hvq `…k¨gvb RMr ‡\_‡K|

Zvi gv‡b, fvix b¶Î‡`i wbqwZ n‡jv wQbœwewQbœ n‡q hvIqv| Avi aŸsmve‡kl wn‡m‡e ‡\_‡K hvq GKwU wbDU«b b¶Î ev GKwU e­¨vK ‡nvj| Pvicv‡k Qwo‡q wQwU‡q \_v‡K wbw¶ß M¨v‡mi `j| ‡K Rv‡b KZ KZ b¶Î GLb ch©š—GB cwiYwZ eiY K‡i‡Q| wKš‘ ïay wgwéI‡q M¨vjvw·‡ZB Ggb wewjqb wewjqb bv¶wÎK aŸsmve‡kl c‡o \_vK‡Z cv‡i|

‡QvU ‡ejvq Avwg Lye fq ‡cZvg ‡h m~h© nqZ we‡ùvwiZ n‡q ‡h‡Z cv‡i| Avm‡j wKš‘ f‡qi wKQy ‡bB| GwU KLbI mycvi‡bvfv n‡e bv| Gi fi AZ ‡ewk bq| fvix b¶‡Îi Zyjbvq nvjKv¸‡jvi wbqwZ GZ DËvj bq| c«\_g K\_v n‡jv, G‡¶‡Î wbDK¬xq c«wµqvq R¡vjvwb e¨q nq A‡bK Kg MwZ‡Z| b¨~bZg bv¶wÎK f‡ii GKwU evgb b¶Î GK wU«wjqb eQi hveZ GKB nv‡i Av‡jv w`‡q ‡h‡Z \_vK‡Z cv‡i| Zvi Ici GKwU nvjKv b¶‡Îi Af¨š—ixY ZvcgvÎv GZ ‡ewk nIqv m¤¢e bq ‡h GwU ‡jvnvI ms‡k­l Ki‡e| d‡j G‡Z DËvj Aš—t‡ùvUb NU‡Z cv‡i bv|

m~h© ¯^í f‡ii b¶‡Îi GKwU Av`k© D`vniY| nvB‡W«v‡Rb R¡vjvwb LiP I wnwjqv‡g iƒcvš—i n‡”Q Lye ax‡imy‡¯’| wnwjqvg g~jZ \_v‡K ‡K›`«xq ‡Kv‡ii w`‡K| wbDK¬xq wewµqvi K\_v ej‡j ‡Kvi‡K wbwl&µqB ej‡Z n‡e| wdDkb msNwUZ nq ‡Kv‡ii c…‡ô| d‡j gnvKl©xq e‡ji m‡¼vPb ‡iva Kivi R‡b¨ m~‡hi« ‡h cigwvY Zvc c«‡qvRb ‡Kvi Zv ‰Zwi‡Z ‡Kv‡bv f~wgKv ivL‡Z cv‡i bv| m‡¼vPb ‡VKv‡Z bZyb nvB‡W«v‡R‡bi mÜv‡b m~h©‡K Gi wbDK¬xq Kg©KvÊ evB‡ii w`‡K Qwo‡q w`‡Z nq| Gw`‡K wnwjqvg ‡Kvi µ‡gB ‡QvU n‡Z \_v‡K| Af¨š—ixY Gme cwieZ©‡bi d‡j mg‡qi mv‡\_ mv‡\_ m~‡hi« ‡Pnviv µgk e`‡j hv‡e| GwU dy‡j-‡du‡c DV‡e| wKš‘ c…ô wKwÂZ VvÊv n‡e| ‡`Lv hv‡e nvjKv jvj Avfv| G Ae¯’v Pj‡Z \_vK‡e hZ w`b bv m~h© ‡jvwnZ `vb‡e (red giant) cwiYZ nq| G mgq m¤¢eZ GwU eZ©gvb mg‡qi cvuP k ¸Y eo n‡e| ‡R¨vwZwe©`‡`i Kv‡Q ‡jvwnZ `vbe GKwU cwiwPZ bvg| AvKv‡ki ‡ek KwU cwiwPZ D¾¡j b¶ÎB GB ‡k«wYi b¶Î| ‡hgb, Avj`v‡eivb (Aldebaran), Av`«v (Betelgeuse) I ¯^vZx (Arcturus)| ¯^í f‡ii b¶Î‡`i mgvwßi ïi“ nq ‡jvwnZ `vbe `kvi gva¨‡g|

‡jvwnZ `vbeiv A‡c¶vK…Z kxZj nq| Z‡e mvBR eo nevi Kvi‡Y G‡`i wewKiY c…ô nq wekvj| Zvi gv‡b mvwe©K `xwß ev (luminosity) J¾¡j¨I ‡ewk| G mgq Kcvj cyo‡e m~‡hi« M«n¸‡jvi| AviI c«vq Pvi k ‡KvwU eQi ci ewa©Z Zvc c«evn AvNvZ nvb‡e G‡`i Ici| Zvi A‡bK Av‡MB c…w\_ex emevv‡mi A‡hvM¨ n‡q hv‡e| mvMi ïwK‡q hv‡e Avi D‡o hv‡e evqygÊj| Gici m~h© AviI we¯—…Z n‡e| M«vm Ki‡e eya M«n‡K| Zvici ïµ| cwi‡k‡l c…w\_ex‡KI wb‡q wb‡e AvM«vmx ‡c‡Ui ‡fZi| Avgv‡`i M«nLvwb cwiYZ n‡e A½v‡i| GZ `nb mn¨ K‡iI wKš‘ hv‡e bv K¶c\_ ‡Q‡o| m~‡hi« jvj-Dò M¨v‡mi NbZ¡ GZ K‡g hv‡e ‡h ‡mUv k~b¨ ¯’v‡bi KvQvKvwQ n‡e| d‡j c…w\_exi MwZ n‡e c«vq gm…Y|

gnvwe‡k¦ Avgv‡`i Aw¯—‡Z¡i KviY m~‡hi« g‡Zv Ggb AmvaviY w¯’wZkxj b¶Î| ‡hwU K‡qK wewjqb eQi a‡i AweiZ R¡j‡Z cv‡i| ‡h mgqUv Rxe‡bi ¯ú›`b ‰Zwi I weKv‡ki R‡b¨ h‡\_ó| wKš‘ ‡jvwnZ `vbe `kvq GB w¯’wZkxjZvi BwZ NU‡e| m~‡hi« g‡Zv b¶‡Îi Rxe‡bi c‡ii avc¸‡jv RwUj, Awbw`©ó I DËvj| nVvr K‡i e`‡j hvq AvPiY I ‡Pnviv| eq¯‹ b¶Îiv ¯úw›`Z n‡Z n‡Z ev M¨v‡mi ‡Lvjm Qvov‡Z Qvov‡Z wbhyZ wbhyZ eQi cvi K‡i w`‡Z cv‡i| b¶‡Îi ‡Kv‡ii wnwjqvg `nb msNwUZ K‡i Kve©b, bvB‡U«v‡Rb, Aw·‡Rb ‰Zwi Ki‡Z cv‡i| d‡j b¶ÎwU AviI wKQy w`b ‡‡euP hvevi R‡b¨ c«‡qvRbxq kw³ ‡c‡q hvq| evB‡ii ¯—iwU‡K gnvk~‡b¨ wb‡¶c Kivi c‡i b¶ÎwUi Kv‡Q Kve©b-Aw·‡R‡b Mov ‡Kvi Qvov Avi wKQy \_v‡K bv|

RwUj Kvh©µ‡gi GB hyM ‡kl n‡j ¯^í I gvSvwi f‡ii b¶Îiv ‡kl ch©š— gnvK‡li« Kv‡Q AvZ¥mgc©Y K‡i| nq m¼ywPZ| GB m‡¼vPb Ac«wZ‡iva¨| ‡kl ch©š— b¶‡Îi mvBR M«‡ni mgvb K‡i Z‡e Qv‡o| G Ae¯’vq e¯—ywU‡K ‡R¨vwZwe©`iv e‡jb ‡k¦Z evgb (white dwarf)| mvBR ‡QvU nevi Kvi‡Y ‡k¦Z evgbiv Lye Aby¾¡jI| hw`I Zv‡`i c…ô ZvcgvÎv n‡Z cv‡i m~‡hi« ‡P‡qI ‡ewk| ‡Kv‡bvwU‡KB ‡Uwj‡¯‹vc Qvov c…w\_ex ‡\_‡K ‡`Lv hvq bv|

`~i fwel¨‡Z ‡k¦Z evg‡b cwiYZ nIqvUvB ‡jLv Av‡Q Avgv‡`i fv‡M¨| G Ae¯’vq ‡cŠuQvi ci eû wewjqb eQi a‡i DËß \_vK‡e m~h©| Gi wekvj Aeqe GZ k³ n‡e ‡h GwU Gi Af¨š—ixY Zvc Lye `¶Zvi mv‡\_ AvU‡K ivL‡e| Avgv‡`i Rvbv ‡miv Zvc ‡iva‡Ki ‡P‡qI fv‡jvfv‡e| wKš‘ ‡fZ‡ii wbDK¬xq Pywj­‡Z ‡h‡nZy wPiw`‡bi R‡b¨ jvjevwZ R¡‡j ‡M‡Q, ZvB ‡fZ‡i Avi ‡Kv‡bv evowZ R¡vjvwb Aewkó ‡bB| d‡j ZviKvwU ‡\_‡K ax‡i ax‡i kxZj gnvk~‡b¨i Mfx‡ii w`‡K ‡h Zvcxq wewKiY wbM©Z n‡”Q ‡mUv c~iY Kiv m¤¢e bq| Lye ax‡i evgb aŸsmve‡klwU kxZj I Aby¾¡j n‡q hv‡e| hw`I GK mgq Zv wQj Avgv‡`i ‡ZR¯^x m~h©| Avi GKwU cwieZ©b evwK| Gevi GwU µgk GKwU KwVb ùwU‡K (crystal) cwiYZ n‡e| `…pZv n‡e Amvgvb¨| ‡k‡l GwU G‡Kev‡iB wbt‡kl n‡q hv‡e| wbi‡e wg‡k hv‡e gnvk~‡b¨i AÜKv‡i|

Abyev`‡Ki ‡bvU:

13. ZvcgvÎvi wfwË‡Z b¶‡Îi ‡k«wYwefv‡M O, B, A, F, G, K I M eY©¸‡jv e¨envi Kiv nq| G µgvbymv‡i O ‡k«wYi b¶Î me‡P‡q Dò| Avi M ‡k«wYi b¶Î me‡P‡q Kg Dò|

14. mvaviY A‡\_© `nb ej‡Z ‡evSvq ‡Kv‡bv ‡gŠ‡ji mv‡Z Aw·‡R‡b wewµqvi gva¨‡g cy‡o hvIqv| Z‡e ‡mUv n‡jv GK ai‡bi ivmvqwbK wewµqv| GLv‡b K\_v n‡”Q wbDK¬xq wewµqv wb‡q| ivmvqwbK wewµqvq bZyb ‡Kv‡bv ‡gŠj DZ&cbœ n‡Z cv‡i bv| wKš‘ wbDK¬xq wewµqvq nq G KvRwUB|

15. GK wU«wjqb mgvb GK j¶ ‡KvwU, gv‡b 1,000,000,000,000|

cÂg Aa¨vq

AÜKvi Agvwbkv

AhyZ b¶‡Îi Av‡jv wb‡q R¡‡j AvKvkM½v Qvqvc\_ (Milky Way galaxy)| c«wZwU b¶‡Îi Mjvq Syj‡Q g…Z¨yi c‡ivqvbv| AvR Avgiv hv‡`i‡K ‡`LwQ, GK nvRvi ‡KvwU eQ‡ii g‡a¨ Zv‡`i ‡ewkifvMB `…wó ‡\_‡K nvwi‡q hv‡e| gviv hv‡e R¡vjvwbi Afv‡e| KviY ZvcMwZwe`¨vi wØZxq m~Î|

AvKvkM½vq Zey b¶‡Îi Av‡jv \_vK‡e| KviY g…Z¨yi mv‡\_ mv‡\_ Avevi Zv‡`i RvqMvq bZyb b¶‡ÎiI Rb¥ nq| Qvqvc‡\_i mwc©j evû‡Z \_vKv M¨vmxq ‡gN m¼ywPZ nq, gnvK‡li« c«fv‡e ¸wU‡q Av‡m I Avjv`v Avjv`v GK ¸”Q b¶‡Îi Rb¥ ‡`q| Avgv‡`i m~h©I Ggb GKwU evû‡ZB Aew¯’Z| Kvjcyi“l ZvivgÊ‡ji w`‡K GK bRi ZvKv‡jI Ggb GKwU bv¶wÎK KviLvbv Lyu‡R cvIqv hvq| Kvjcyi“‡li Z‡jvqv‡ii ‡K‡›`«i ‡Nvjv‡U Av‡jvLvbv ‡Kv‡bv ZviKv bq| GwU GKwU ‡beyjv ev bxnvwiKv| wekvj GK M¨vmxq ‡gN| mv‡\_ Av‡Q D¾¡j bZyb bZyb b¶Î| `…k¨gvb Av‡jvi e`‡j Ae‡jvwnZ wewKiY w`‡q ‡R¨vwZwe©`iv GB bxnvwiKvq wKQy b¶Î‡K Zv‡`i R‡b¥i G‡Kev‡i ïi“i `kv¸‡jv‡Z ch©‡e¶Y K‡i‡Qb| Giv GLbI M¨vm I ay‡jvq ‡X‡K Av‡Q|

hZ w`b h‡\_ó M¨vm Av‡Q, Avgv‡`i Qvqvc‡\_i mwc©j evû¸‡jv‡Z b¶‡Îi Rb¥ n‡ZB \_vK‡e| Qvqvc‡\_i M¨vm¸‡jvi wKQy Ask c«viw¤¢K `kvq Av‡Q| GLbI ‡h¸‡jv b¶‡Î cwiYZ n‡Z cv‡iwb| wKQy Ask Avevi mycvi‡bvfv we‡ùvi‡Yi gva¨‡g wewfbœ b¶Î ‡\_‡K G‡m‡Q| A\_ev G‡m‡Q bv¶wÎK evqy, ‡QvU ‡QvU So I Ab¨vb¨ c«wµqvi gva¨‡g| wbtm‡›`‡n GB c«wµqvi cybive…wË Awbw`©ó mgq a‡i Pj‡Z cv‡i| cyivZb b¶Îiv gviv wM‡q I m¼ywPZ n‡q ‡k¦Z evgb, wbDU«b b¶Î e­¨vK ‡nvj n‡q ‡M‡j Avi Avš—tbv¶wÎK ¯’v‡b bZyb c`v\_© mieivn Ki‡Z cvi‡e bv| ax‡i ax‡i c«viw¤¢K M¨vm¸‡jv me b¶Î n‡Z \_vK‡e| GK mgq ZvI ‡kl n‡q hv‡e| ‡k‡li w`‡Ki GB b¶Î¸‡jvI Rxe‡bi cvV PywK‡q gviv ‡M‡j Qvqvc\_ Lye Aby¾¡j n‡q hv‡e| Z‡e KvRUv ûU K‡i n‡q hv‡e bv| ‡QvU I bZyb b¶Îiv Zv‡`i wbDK¬xq `nb m¤ú~Y© K‡i ¸wU‡q ‡k¦Z evgb n‡Z eû wewjqb eQi mgq jvM‡e| wKš‘ c«wµqv axi n‡jI wefxwlKvgq Abš— ivZ GKw`b ‡b‡g Avm‡eB|

wPi c«mviYkxj gnvk~‡b¨ Qwo‡q wQwU‡q \_vKv evwK me Qvqvc‡\_i Kcv‡jI H GKB wRwbm ‡jLv Av‡Q| wbDK¬xq kw³i Kj¨v‡Y eZ©gvb gnvwek¦ R¡jR¡j K‡i Av‡jv w`‡”Q| wKš‘ GK w`b Av‡jvi GB g~j¨evb Drm dywi‡q hv‡e| Av‡jvi hyM wPiw`‡bi R‡b¨ we`vq n‡e|

Z‡e gnvRvMwZK Av‡jv dywi‡q ‡M‡jB gnvwek¦ gviv hv‡e bv| KviY kw³i Drm Av‡Q Av‡iKwU, hv wbDK¬xq wewµqvi ‡P‡qI kw³kvjx| cvigvYweK ¯—‡i wPš—v Ki‡j c«K…wZi `ye©jZg ej gnvKl©| wKš‘ gnvRvMwZK gvcKvwV‡Z GB ejwUB Avevi ivRv| Gi c«fve n‡Z cv‡i Lye g…`y| wKš‘ ‡mUv bv‡Qvoev›`vi g‡Zv KvR K‡i ‡h‡Z \_v‡K| wewjqb wewjqb eQi hveZ b¶Îiv wbDK¬xq `n‡bi gva¨‡g wb‡R‡`i IRb‡K a‡i ‡i‡L‡Q| wKš‘ gnvKl© GZ w`b ïay IuZ‡c‡Z wQj|

GKwU cigvYyi wbDwK¬qv‡mi `ywU ‡c«vU‡bi g‡a¨ wµqvkxj gnvKl© ej mej wbDK¬xq e‡ji GK k ‡KvwU ‡KvwU ‡KvwU ‡KvwU ‡KvwU ‡KvwU ‡KvwU fv‡Mi GK fvM (10-37)| wKš‘ gnvKl© ejwU µgea©gvb| c«wZwU evowZ ‡c«vUb evowZ IR‡bi ‡hvMvb ‡`q| Gi d‡j ‡kl ch©š— gnvKl© ej AvM«vmx n‡q `vuovq| c«ej kw³i ‡cQ‡b GB Zxe« ejB g~j f~wgKv iv‡L|

gnvK‡li« ¶gZv me‡P‡q fv‡jvfv‡e c«`k©b K‡i e­¨vK ‡nvj| GLv‡b Rq n‡q‡Q e­¨vK ‡nv‡ji| m‡¼vP‡bi d‡j b¶‡Îi AvqZb n‡q ‡M‡Q k~b¨| mg‡hi Amxg weK…wZi AvKv‡i Av‡kcv‡ki ¯’vbKv‡j ‡m NUbvi GKwU Qvc c‡o‡Q| e­¨vK ‡nvj wb‡q GKwU `vi“Y gvbm cix¶v (thought experiment) Av‡Q| g‡b Ki“b, A‡bK `~i ‡\_‡K GKwU ‡QvU, ‡hgb 100 M«vg f‡ii e¯—y‡K e­¨vK ‡nv‡j ‡d‡j ‡`Iqv n‡jv| e¯—ywU `…wói Avov‡j nvwi‡q hv‡e Ges wPiZ‡i bvMv‡ji evB‡i P‡j hv‡e| Z‡e e­¨vK ‡nv‡ji KvVv‡gv GB NUbvi GKwU mv¶¨ enb Ki‡e| e¯—ywU‡K ‡L‡q e­¨vK ‡nv‡ji mvBR Lye mvgvb¨ cwigvY eo n‡e| wnmve K‡i ‡`Lv ‡M‡Q, e¯—ywU‡K A‡bK `~i ‡\_‡K ‡djv n‡j e­¨vK ‡nv‡ji fi hZUyKy evo‡e Zv e¯—ywUi g~j f‡ii mgcwigvY| Zvi gv‡b, fi ev kw³i GZUyKyI Ab¨ ‡Kv‡bv w`‡K hv‡e bv|

Gevi Ab¨ GKwU cix¶v| fiwU‡K Gevi ax‡i ax‡i e­¨vK ‡nv‡ji w`‡K bvgv‡bv n‡”Q| GUv Kivi Rb¨ e¯—ywUi mv‡\_ GKwU iwk jvMv‡Z n‡e| Gici ‡mUv‡K cywji Ici w`‡q Nywi‡q G‡b W«v‡gi mv‡\_ mshy³ Ki‡Z n‡e| W«v‡gi gva¨‡g Av‡¯— Av‡¯— iwki c¨vuP ‡Lvjv n‡e| (wPÎ 5.1 ‡`Lyb: Avgiv a‡i wbw”Q iwkwU c«mvwiZ n‡e bv| ‡Kv‡bv IRbI \_vK‡e bv| ev¯—‡e G `y‡Uvi ‡Kv‡bvwUB m¤¢e bq, wKš‘ RwUjZv Gov‡bvi R‡b¨ a‡i wb‡Z n‡”Q|) fiwU‡K bx‡P bvgv‡bv n‡j GwU kw³ mieivn Ki‡Z cvi‡e| ‡hgb W«v‡gi mv‡\_ hy³ ‰e`¨ywZK ‡Rbv‡iUi Pvjy K‡i GUv Kiv ‡h‡Z cv‡i| e¯—ywU e­¨vK ‡nv‡ji c…‡ôi hZ ‡ewk wbKUeZ©x n‡e, Zvi Ici ‡nv‡ji gnvKl©xq Uvb ZZ kw³kvjx n‡e| wb‡Pi w`‡K Uvb hZ evo‡e, e¯—ywU ‡Rbv‡iUi w`‡q ZZB ‡ewk KvR Kiv‡Z cvi‡e| e¯—ywU e­¨vK ‡nv‡ji c…‡ô ‡cŠuQ‡Z ‡cŠuQ‡Z ‡Rbv‡iUi‡K Kx cwigvY kw³ mieivn Ki‡e Zv mn‡RB wnmve K‡i ‡ei Kiv hvq| Av`k© ‡¶‡Î Gi DËi n‡e, e¯—ywUi mgM« wbðj fi-kw³| (wbðj fi m¤ú‡K© Rvb‡Z cwiwkó ‡`Lyb|)

AvBb÷vB‡bi weL¨vZ E=mc2 m~ÎwU g‡b Av‡Q wbðqB| m f‡ii GKwU e¯— ‡\_‡K mc2 cwigvY kw³ cvIqv hvq| ZË¡ ej‡Q, e­¨vK ‡nvj e¨envi K‡i fv‡M¨i PvKv Nywi‡q ‡`Iqv m¤¢e| 100 M«vg f‡ii e¯—y ‡\_‡KB cvIqv hv‡e wZb k ‡KvwU wK‡jvIqvU-NÈv (gv‡b wZb k ‡KvwU BDwbU we`¨yZ-Abyev`K) we`¨yr| Zyjbvi R‡b¨ e‡j ivwL, m~h© hLb 100 M«vg R¡vjvwb wdDk‡bi gva¨‡g cywo‡q Gi GK fv‡MiI Kg kw³ mieivn K‡i| gv‡b ZË¡ Abymv‡i, gnvKl©xq Dcv‡q ‡h kw³ cvIqv hv‡e Zv b¶‡Îi kw³ ‡RvMv‡bv Zvc-wbDK¬xq wdDk‡bi GK k ¸Y|

wPÎ 5.1

Av`k© GB gvbm cix¶vq GKwU iwki mvnv‡h¨ GKwU e¯—y‡K ax‡i ax‡i e­¨vK ‡nv‡ji c…‡ôi w`‡K bvgv‡bv nq| e¨envi Kiv nq GKwU cywj e¨e¯’v (Qwe‡Z ‡`Lv‡bv nqwb)| d‡j, wb‡Pi bvgv e¯—ywU KvR Ki‡Z \_v‡K Avi e‡· kw³ cvVv‡Z \_v‡K| e¯—ywU e­¨vK ‡nv‡j c…‡ôi hZB KvQvKvwQ n‡Z \_v‡K, cvVv‡bv ‡gvU kw³i cwigvY ZZB e¯—ywUi mgM« fi-kw³i cwigv‡Yi mgvb n‡Z \_v‡K|

GLv‡b ‡h `y‡Uv ‡KŠk‡ji K\_v ejv n‡jv Zvi `y‡UvB G‡Kev‡i Aev¯—e| wbtm‡›`‡n e­¨vK ‡nv‡j e¯—yiv c‡o weiwZnxbfv‡e| kw³ D×vi Kivi g‡Zv K‡i my›`i Dcv‡q cywj ‡\_‡K Sy‡j \_v‡K bv| ev¯—‡e wbðj f‡ii k~b¨ I GK k fv‡Mi gvSvgvwS gv‡bi ‡Kv‡bv GKwU kw³ cvIqv hv‡e| c«K…Z gvbUv wbfi« Ki‡e ‡fŠZ cwiw¯’wZi Ici| MZ K‡qK `k‡K ‡R¨vwZc©`v\_©we‡`iv wewfbœ iKg Kw¤úDUvi wmgy‡jkb1 I MvwYwZK g‡Wj we‡k­lY K‡i ‡`‡L‡Qb| D‡Ïk¨ n‡jv ‡cuwP‡q e­¨vK ‡nv‡ji ‡fZ‡i P‡j hvIqvi mgq M¨v‡mi Ae¯’v ‡Kgb nq Ges Kx cigwvY I Kxfv‡e kw³ wegy³ nq Zv Rvbv| GLv‡b ‡h ‡fŠZ c«wµqv¸‡jv msNwUZ nq ‡m¸‡jv ‡ek RwUj| ZeyI GUv ‡evSv hv‡”Q ‡h Gme RvqMv ‡\_‡K wecyj cwigvY gnvKl©xq kw³ ‡ewi‡q Avm‡Z cv‡i|

GKwU ch©‡e¶Y ‡\_‡K Kiv m¤¢e nvRvi nvRvi wnmve-wbKvk| Gfv‡e e¯—y wM‡j Lvevi mgq m¤¢ve¨ e­¨vK ‡nvj Lyu‡R cvIhvi R‡b¨ ‡R¨vwZwe©`iv eo AvKv‡i AbymÜvb Pvwj‡q‡Qb| GLb ch©š— AKvU¨fv‡e ‡Kv‡bv e­¨vK ‡nvj cvIqv hvqwb| Z‡e wmMbvm ev eKgÊjx‡Z Aew¯’Z GKwU wm‡÷g‡K ‡ek m¤¢vebvgq wn‡m‡e ‡`Lv hv‡”Q| bvg wmMbvm G·-1| AcwU‡Kj ‡Uwj‡¯‹v‡ci gva¨‡g GKwU e…nr I DËß bxj `vbe (blue giant) ‡k«wYi ZviKv ‡`Lv ‡M‡Q| is bxj e‡jB bvg bxj `vbe n‡q‡Q| eY©vjx we‡k­l‡Yi gva¨‡g ‡evSv hv‡”Q ZviKvwU GKv bq| wbqg ‡g‡b ‡gvPo Lv‡”Q GwU| Zvi gv‡b, Av‡kcv‡ki ‡Kv‡bv e¯—yi gnvKl© G‡K mgq mgq AvKl©Y Ki‡Q| Gi A\_©, wbwðZ K‡iB ejv P‡j, GB b¶ÎwU Ges Aci e¯—ywU G‡K Aci‡K Lye KvQ ‡\_‡K c«`w¶Y Ki‡Q| wKš‘ AcwU‡Kj ‡Uwj‡¯‹v‡c Aci b¶ÎwU‡K ‡`Lv hv‡”Q bv| nq GwU ‡Kv‡bv e­¨vK ‡nvj, bqZ Lye Aby¾¡j ‡Kv‡bv ¶y`« Zviv| d‡j g‡b hv‡”Q GwU e­¨vK ‡nvj n‡Z cv‡i| Z‡e wbwðZ K‡i ejv hv‡”Q bv|2

A`…k¨ e¯—ywUi fi ‡\_‡K cvIqv hvq Av‡iKwU Bw½Z| GUv wbDU‡bi m~Î ‡\_‡KB e‡j ‡`Iqv m¤¢e| Gi R‡b¨ `iKvi ïay bxj `vbe ZvivwUi fi Rvbv| b¶‡Îi fi I is‡qi g‡a¨ Lye Nwbô m¤úK© Av‡Q e‡j ‡mUvI mn‡RB ‡ei K‡i ‡djv hvq| bxj Zviv‡`i DËvc Lye ‡ewk| d‡j Zv‡`i fiI ‡ewk| wnmve ‡\_‡K aviYv Kiv hvq A`…k¨ m½x ZviKvwUi fi K‡qK ‡mŠi f‡ii mgZyj¨| cwi®‹vi ‡evSv hv‡”Q, GwU mvaviY ‡QvU I Aby¾¡j ‡Kv‡bv Zviv bq| Zvi gv‡b GwU ‡Kv‡bv m¼ywPZ fvix b¶ÎB n‡e| ‡k¦Z evgb, wbDU«b b¶Î ev e­¨vK ‡nvj| wKš‘ wKQy ‡gŠwjK ‡fŠZ Kvi‡Y GZ fvix ¶y`« ‡Kv‡bv e¯—y ‡k¦Z evgb ev wbDU«b b¶Î n‡Z cv‡i bv| G‡¶‡Î \_vKvi K\_v Zxe« gnvKlxq ‡¶Î, hv e¯—ywU‡K ¸wU‡q ‡dj‡Z PvB‡e| m¤ú~Y© m¼ywPZ n‡q e­¨vK ‡nvj n‡q hvIqv ‡VKv‡bv hv‡e hw` ‡Kv‡bv c«Kvi Af¨š—ixY Pvc KvR K‡i| ‡hUv gnvK‡li« m‡¼vP‡bi wecixZ w`‡K KvR Ki‡e| wKš‘ m¼ywPZ e¯—ywUi fi hw` nq K‡qK ‡mŠi f‡ii mgvb, Z‡e ‡Kv‡bv e‡ji c‡¶B Gi `yg‡o hvIqv ‡VKv‡bv m¤¢e bq| Ges b¶ÎwUi Af¨š—ifvM hw` `ygov‡bv ‡VKv‡bvi g‡Zv `…p n‡Zv, Zvn‡j e¯—ywU‡Z k‡ãi ‡eM Av‡jvi ‡e‡Mi ‡P‡q ‡ewk n‡q ‡hZ| wKš‘ GUv we‡kl Av‡cw¶KZvi wei“‡× hv‡”Q| d‡j ‡ewkifvM c`v\_© I ‡R¨vwZwe©‡`i g‡Z Gme cwiw¯’wZ‡Z e­¨vK ‡nv‡ji Rb¥ Awbevh©|

wmMbvm G·-1 wm‡÷‡g e­¨vK ‡nvj \_vKvi mc‡¶ wbwðZ c«gvY G‡m‡Q Av‡iKwU m¤ú~Y© wfbœ ch©‡e¶Y ‡\_‡K| Gi bvg G·-1 ‡`Iqvi KviY wm‡÷g G·-‡i (iÄb iwk¥) Gi GKwU kw³kvjx Drm| K…wÎg DcM«‡n \_vKv ‡mÝ‡ii gva¨‡g kbv³ Kiv hvq ‡mB iwk¥| wmMbvm G·-1 Gi A`…k¨ e¯—ywU‡K e­¨vK ‡nvj a‡i wb‡j ZvwË¡K bgybv GB G·-‡i‡K Lye fv‡jvfv‡e e¨vL¨v Ki‡Z cv‡i| e­¨vK ‡nv‡ji cwigvcK…Z gnvKl© ‡¶Î GZB kw³kvjx ‡h GwU bxj `vbe ZvivwU ‡\_‡K c`v\_© Lye‡j wb‡Z cv‡i| wQbZvB Kiv M¨vm P‡j hvq e­¨vK ‡nv‡ji w`‡K| wPiKv‡ji R‡b¨ we¯§…wZi AZ‡j| wm‡÷‡gi N~Y©‡bi Kvi‡Y cZbkxj c`v\_©¸‡jv e­¨vK ‡nv‡ji Pvicv‡k cvK Lv‡e| ‰Zwi n‡e PvKwZi g‡Zv GKwU AvK…wZ| Ggb GKwU PvKwZi c‡¶ cy‡ivcywi w¯’wZkxj nIqv m¤¢e bq| KviY ‡K‡›`«i w`‡K \_vKv c`v\_© c«v‡š—i w`‡K Aew¯’Z c`v‡\_i« Zyjbvq A‡bK `ª“Z c«`w¶Y Ki‡e| mv›`« ej3 GB welg N~Y©b‡K gm…Y Kivi ‡Póv Ki‡e| d‡j M¨v‡mi DËvc ‡e‡o hv‡e| GZ ‡ewk ‡h ‡mUv mvaviY Av‡jvi e`‡j G·-‡i wbM©Z Ki‡e| G‡Z K‡i M¨v‡mi ‡h K¶xq kw³ e¨q n‡e Zvi d‡j Zv ax‡i ax‡i mwc©j c‡\_ e­¨vK ‡nv‡ji w`‡K c«‡ek Ki‡e|

d‡j wmMbvm G·-1 wm‡÷‡g e­¨vK ‡nvj \_vKvi c«gvY ‡ek wKQy hyw³i Ici wfwË K‡i `vuwo‡q Av‡Q| Kv‡R jvM‡Q ch©‡e¶Y I ZË¡ `y‡UvB| ‡R¨vwZwe©`¨vi M‡elYv eZ©gvb mg‡q GgbB nq| GKwUgvÎ c«gvY ‡Rviv‡jv f~wgKv ivL‡Z cv‡i bv| wmMbvm G·-1 I GKB iKg AviI A‡bK¸‡jv wm‡÷g wb‡q hvPvB-evQvB K‡i g‡b n‡”Q e­¨vK ‡nvj Av‡Q| wbt‡m‡›`‡n e­¨vK ‡nv‡ji Dcw¯’wZi e¨vL¨vwUB me‡P‡q wbfi«‡hvM¨ I wb‡f©Rvj|

AviI eo e­¨vK ‡nvjiv Gi ‡P‡qI `vi“Y Kg©KvÊ Ki‡Z cv‡i| eZ©gv‡b ‡ewki Qvqvc‡\_i ‡K‡›`«B mycvig¨vwmf ev AwZfvix e­¨vK ‡nvj \_vKvi m¤¢vebv Lye ‡ewk| Gi c«gvY n‡jv, Gme Qvqvc‡\_i ‡K›`«gÊ‡ji Zviv¸‡jvi `ª“Z PjvPj| ‡`‡L g‡b n‡”Q Zviv¸‡jv GKwU Zxe« AvKl©Yag©x I Lye ¶y`« e¯—yi w`‡K P‡j hv‡”Q| wnmve-wbKvk ‡\_‡K G iKg m¤¢ve¨ e¯—y‡`i fi GK ‡KvwU ‡\_‡K GK k ‡KvwU ch©š— cvIqv ‡M‡Q| d‡j Av‡kcv‡ki ‡h‡Kv‡bv wew”Qbœ e¯—y‡K ‡MvM«v‡m wMj‡e Giv| m¤¢eZ b¶Î, M«n, M¨vm, ay‡jv—‡KDB G `vbe‡`i \_vev ‡\_‡K evuP‡Z cv‡i bv| GB cZb c«wµqvi Db¥v`bv ‡Kv‡bv ‡Kv‡bv ‡¶‡Î cy‡iv Qvqvc‡\_i KvVv‡gvB e`‡j ‡`q| mwµq Qvqvc\_ ‡K‡›`«i (active galactic nuclei) eû iƒc‡f‡`i mv‡\_ cwiPq Av‡Q ‡R¨vwZwe©`‡`i| ‡Kv‡bv ‡Kv‡bv Qvqvc‡\_i ‡Pnviv ‡`‡L ‡Zv g‡b nq gvÎ we‡ùviY NUj| wKQy wKQy Avevi ‡eZvi Zi½, G·-‡i ev kw³i Ab¨ iƒ‡ci kw³kvjx Drm| Z‡e me‡P‡q ‡Pv‡L covi g‡Zv NUbv n‡jv, wKQy wKQy M¨vjvw· Avevi M¨v‡mi Zxe« ‡RU ev ‡dvqviv wb‡¶c K‡i| Ges GB ‡dvqvivi ‰`N¨© nvRvi nvRvi GgbwK wgwjqb wgwjqb gvBj Ry‡oI we¯—…Z \_v‡K| G‡`i ‡Kv‡bv ‡Kv‡bvwUi kw³i D`MxiY LyeB we¯§qKi| ‡hgb eû `~‡ii ‡Kv‡bv ‡Kv‡bv ‡Kvqvmvi gvÎ GK Av‡jvKel© PIov GjvKv ‡\_‡K nvRvi nvRvi M¨vjvw·i mgvb kw³ D`MxiY Ki‡Z cv‡i| d‡j `~i ‡\_‡K ‡`‡L G‡`i‡K b¶‡Îi g‡Zv jv‡M| ‡Kvqvmvi bvgUvB ‡Kvqvwm-‡÷jvi K\_vwUi msw¶ß iƒc| gv‡b b¶‡Îi g‡Zv e¯—y|

eû ‡R¨vwZwe©Ávbxi wek¦vm, Zxe«fv‡e Av‡jvwoZ Gme e¯—yi ‡K‡›`« cwiPvj‡Ki Avm‡b e‡m Av‡Q AveZ©bkxj eo eo e­¨vK ‡nvj| hviv Zv‡`i Avkcvk ‡\_‡K c`v\_© wQbZvB K‡i P‡j‡Q| e­¨vK ‡nv‡ji Kv‡Q Avmv ‡h‡Kv‡bv Zviv nq e­¨vK ‡nv‡ji gnvK‡li« c«fv‡e wQbœwfbœ n‡q hv‡e A\_ev Ab¨ Zvivi mv‡\_ msNl© NwU‡q ZQbQ n‡q hv‡e| wQbœwfbœ c`v\_©¸‡jv m¤¢eZ DËß M¨v‡mi GKwU PvKwZ MVb Ki‡e, hv e­¨vK ‡nvj‡K ‡K›`« K‡i Nyi‡e I µgk ‡fZ‡ii w`‡K c«‡ek Ki‡e| ‡hgbUv n‡q‡Q wmMbvm G·-1 Gi ‡¶‡Î| Z‡e GLv‡b PvKwZi mvBRUv n‡e AviI A‡bK ‡ewk eo| 1994 mv‡ji ‡g gv‡mi GKwU c«wZ‡e`‡b ejv nq, nvej ‡¯úm ‡Uwj‡¯‹vc Gg87 M¨vjvw·i ‡K‡›`« Lye `ª“Z N~Y©bkxj M¨v‡mi GKwU PvKwZ ‡`L‡Z ‡c‡q‡Q| ch©‡e¶‡Yi k³ Bw½Z n‡jv, ILv‡b Av‡Q GKwU mycvig¨vwmf e­¨vK ‡nvj|

m¤¢eZ e­¨vK ‡nv‡j cZbkxj M¨v‡mi PvKwZ ‡\_‡K wbM©Z wecyj cwigvY kw³ ‡nv‡ji NyY©b A¶ w`‡q ‡ewi‡q Av‡m| d‡j c«vqB `yB wecixZ w`‡K `ywU wfbœ ‡RU ‰Zwi n‡Z ‡`Lv hvq| GB kw³ wbM©gb I ‡RU ‰Zwii c«wµqv m¤¢eZ Lye RwUj| G‡Z Zwo”Py¤^KZ¡, mv›`« I gnvKl©mn Ab¨vb¨ ej KvR K‡i| GB welqwU‡Z e¨vcK ZvwË¡K I ch©‡e¶YMZ M‡elYvi AeKvk Av‡Q|

wgwéI‡qi Kx Ae¯’v Zvn‡j? Avgv‡`i Qvqvc\_wUI wK GKBfv‡e Av‡jvwoZ n‡Z cv‡i? wgwéI‡hi ‡K›`« c«vq wÎk nvRvi Av‡jvKel© `~‡i Av‡Q| Ae¯’vb AvKv‡ki abygÊjx‡Z (Sagittarius)| Gi ‡fZ‡ii GjvKvmg~n wecyj cwigvY M¨vm I ay‡jv Øviv ‡X‡K Av‡Q| ZvB ‡R¨vwZ©weÁvbxiv Kv‡R jvwM‡q‡Qb G·-‡i, Mvgv iwk¥ I Ae‡jvwnZ Av‡jvi hš¿| Gfv‡e GKwU wbweo Nb I ‡ZR¯^x e¯—y Lyu‡R cvIhv ‡Mj| bvg m¨vRvB‡Uwiqvm G ÷vi| e¨vm K‡qK k ‡KvwU wK‡jvgwUiv‡ii ‡ewk bq (gnvRvMwZK gvcKvwV‡Z ‡QvUB Lye)| ZeyI GwUB Qvqvc‡\_i me‡P‡q kw³kvjx ‡eZvi Drm| GKB RvqMvq Avevi Av‡Q GKwU kw³kvjx Ae‡jvwnZ DrmI| cv‡kB Av‡Q GKwU wfbœag©x G·‡i e¯—y| cwiw¯’wZ Lye RwUj n‡jI g‡b n‡”Q GLv‡b Aš—Z GKwU fvix e­¨vK ‡nvj Av‡Q| ‡hwU ch©‡e¶‡Y cvIqv wKQy NUbvi ‡cQ‡b `vqx|

Z‡e e­¨vK ‡nvjwUi fi m¤¢eZ eo ‡Rvi GK ‡KvwU ‡mŠi f‡ii mgvb| Zvi gv‡b, mycvig¨vwmf e­¨vK ‡nvj‡`i g‡a¨ Ae¯’vb G‡Kev‡i bx‡Pi w`‡K| wKQy wKQy M¨vjvw·i ‡K›`« ‡\_‡K Zxe« kw³ I c`v\_© wbM©g‡bi Ggb ‡Kv‡bv c«gvY ‡bB| Z‡e n‡Z cv‡i ‡mLvbKvi e­¨vK ‡nvj GLb myß Ae¯’vq Av‡Q| fwel¨‡Zi ‡Kv‡bv GK mgq hw` GwU AviI ‡ewk cwigvY M¨v‡mi mieivn cvq, Zvn‡j nqZ R¡‡j DV‡e| Ab¨‡`i g‡Zv GZUv Av‡jvob nqZ GwU bvI Zyj‡Z cv‡i| mwc©j evû‡Z \_vKv M«n I b¶‡Îi Ici GB c«R¡j‡bi Kx c«wZwµqv n‡e Zv ¯úó bq|

Av‡kcv‡ki AÂ‡ji c`v\_© dywi‡q hvIqv ch©š— e­¨vK ‡nvj wM‡j ‡bIqv Lvev‡ii wbðj f‡ii kw³ wbM©Z Ki‡Z \_vK‡e| mg‡qi mv‡\_ mv‡\_ AviI ‡ewk ‡ewk c`v\_© ‡c‡U hv‡e e­¨vK ‡nv‡ji| d‡j e­¨vK ‡nvj µgk eo n‡e| wL‡`I evo‡e mv‡\_ mv‡\_| GgbwK eû `~‡ii K¶c‡\_i b¶ÎivI ‡kl ch©š— Gi wkKv‡i cwiYZ n‡e| Gi KviY gnvKl©xq wewKiY| GB c«wZwµqv Lye `ye©j n‡jI gnvwe‡k¦i P~W়vš— cwiYwZ Gi IciB wbfi« K‡i|

1915 mv‡j mvwe©K Av‡cw¶KZv `vuo Kiv‡bvi wVK ciciB AvBb÷vBb gnvKl©xq ‡¶‡Îi GKwU D‡j­LL‡hvM¨ ‰ewkó¨ Avwe®‹vi Ki‡jb| Z‡Ë¡i ‡¶Î mgxKiY¸‡jv we‡k­lY K‡i wZwb ‡`L‡jb, Zi‡½i g‡Zv GK ai‡bi gnvKl©xq Av‡jvo‡bi c~e©vfvm cvIqv hv‡”Q| k~b¨¯’v‡b ‡hwU Av‡jvi ‡e‡M Qwo‡q c‡o| GB gnvKl©xq wewKiY g‡b Kwi‡q ‡`q Av‡jv I ‡eZvi Zi‡½i g‡Zv Zwo”Py¤^Kxq wewKi‡Yi K\_v| Z‡e wecyj cwigvY kw³ enb Ki‡jI Zwo”Py¤^Kxq wewKi‡Yi mv‡\_ Gi cv\_©K¨ Av‡Q| gnvKl©xq wewKiY c`v\_©‡K Av‡jvwoZ K‡i Zyjbvg~jK Kg Zxe«Zvq| ‡hLv‡b Zv‡ii Rv‡ji g‡Zv bvRyK e¯—yI ‡eZvi Zi½‡K ‡kvlY K‡i wb‡Z cv‡i, ‡mLv‡b gnvKl©xq Zi½ GZ `ye©j c«wZwµqv K‡i ‡h c…w\_ex ‡f` K‡iI P‡j ‡h‡Z cv‡i| Ges ej‡Z ‡M‡j GKUyI Zxe«Zv bv Kwg‡qB| Avcwb hw` ‡Kv‡bv gnvKl©xq ‡jRvi evbvb, Zvn‡j GK wK‡jvIqv‡Ui GKwU ‰e`¨ywZK KyÊjxi mgvb Kg©`¶Zvq GK ‡KUwj cvwb Mig Ki‡Z n‡j GK j¶ ‡KvwU wK‡jvIqvU kw³i iwk¥ jvM‡e| c«K…wZi Rvbv ej¸‡jvi g‡a¨ gnvKl©xq Ab¨‡`i Zyjbvq A‡bK ‡ewk `ye©j e‡jB GLv‡bI NU‡Q Zvi c«wZdjb| ‡hgb, GKwU cigvYyi ‰e`¨ywZK kw³ I gnvKl©xq kw³i AbycvZ c«vq 1040| Avgiv ‡h gnvKl© Abyfe KiwQ Zvi GKgvÎ KviY n‡jv ejwUi c«fve µgea©gvb| d‡j M«n‡`i g‡Zv e¯—yi ‡¶‡Î Gi f~wgKvB c«KU n‡q I‡V|

gnvKl© Zi‡½i c«wZwµqv ‡h ïay AwZgvÎvq `ye©j Ggb bq, Gi DrcwËI N‡U bxi‡e bxi‡e| ZË¡ ej‡Q, G wewKiY Drcbœ nq fi Av‡jvwoZ n‡j| ‡hgb m~‡hi« Pviw`‡K c…w\_exi MwZ AweiZ mvwi mvwi gnvKl©xq Zi½ Drcbœ Ki‡Q| wKš‘ ‡gvU Drcbœ ¶gZv gvÎ GK wgwjIqvU| GB kw³ n«v‡mi d‡j c…w\_exi K¶c\_ GKUy GKUy K‡i ‡QvU n‡q hv‡”Q| Z‡e ‡mUv n‡”Q ax‡i| c«wZ `k eQ‡i GK ‡mw›UwgUv‡ii GK ‡KvwU ‡KvwU fvM nv‡i|

Z‡e ‡hme fvix e¯—y Av‡jvi Lye KvQvKvwQ ‡e‡M PjvPj K‡i Zv‡`i K\_v Avjv`v| gnvKl©xq wewKi‡Yi c«wZwµqvi ‡cQ‡b `ywU welq KvR Ki‡Z cv‡i| GKwU n‡jv AvKw¯§K I DËvj NUbv| mycvi‡bvfv we‡ùviY| hvi gva¨‡g GKwU b¶Î ¸wU‡q e­¨vK ‡nv‡j cwiYZ nq| Ggb NUbvi d‡j Aí mg‡qi R‡b¨ gnvKl©xq wewKi‡Yi m‡¼Z ‰Zwi n‡Z cv‡i| ¯’vwqZ¡ n‡Z cv‡i gvÎ K‡qK wgwj‡m‡KÛ| Ges mvaviYZ 1044 Ryj kw³ wbM©Z n‡Z cv‡i| (Gi mv‡\_ m~‡hi« Zvc Drcv`‡bi Zyjbv K‡i ‡`L‡Z cv‡ib| ‡mUv n‡jv ‡m‡K‡Û 3x1026 Ryj|

Av‡iKwU NUbv n‡jv D”P MwZi fvix e¯—y‡`i G‡K Ac‡ii Pvicv‡k c«`w¶Y| ‡hgb, KvQvKvwQ Ae¯’v‡bi \_vKv `ywU b¶‡Îi evBbvwi wm‡÷g ‡\_‡K AbeiZ wecyj gvÎvq gnvKl© wewKiY wbM©Z n‡e| G c«wµqv fv‡jv KvR Ki‡e hw` `ywU c«`w¶YiZ b¶Îiv m¼ywPZ e¯—y nq| GB ‡hgb wbDU«b b¶Î ev e­¨vK ‡nvj| CMjgÊjxi (Aquila) `ywU wbDU«b b¶Î gvÎ K‡qK wgwjqb wK‡jvwgUvi `~i ‡\_‡K G‡K Aci‡K c«`w¶Y Ki‡Q| G‡`i gnvKl©xq ‡¶Î GZ kw³kvjx ‡h AvU NÈvi g‡a¨B GKwU N~Y©b m¤úbœ nq| d‡j b¶Î¸‡jv ‡gvUvgywU Av‡jvi KvQvKvwQ ‡eM wb‡qB Pj‡Q| GB `ª“Z MwZi Kvi‡Y gnvKl©xq Zi½ wbM©g‡bi nviI ‡ewk| d‡j c«wZ eQi Zv‡`i K¶c\_ D‡j­LL‡hvM¨ nv‡i (c«vq 75 gvB‡µv‡m‡KÛ) ‡QvU n‡”Q| GB nvi µgkB evo‡Z \_vK‡e| GLb ‡\_‡K 30 ‡KvwU eQi ci Zviv G‡K Ac‡ii Ici ûgwo ‡L‡q co‡e|

‡R¨vwZwe©`‡`i wnmve g‡Z, c«wZ Qvqvc‡\_ c«vq c«wZ GK j¶ eQ‡i GKwU evBbvwi RMr Gfv‡e wg‡k hvq| Giv GZUv wbweo I G‡`i gnvKl©xq ‡¶Î GZUv kw³kvjx ‡h Giv ‡kl gyû‡Z© wg‡k hvIqvi Av‡Mi gyû‡Z© c«wZ ‡m‡K‡Û G‡K Aci‡K nvRvi nvRvi evi Ny‡i Avm‡e| gnvKl© Zi‡½i wbM©gbI ûU K‡i ‡e‡o hv‡e| AvBb÷vB‡bi m~Î ej‡Q, GB ‡kl Ae¯’vq gnvKl©xq kw³i DZ&cv`b n‡e A‡bK ‡ewk| K¶c\_ Lye `ª“Z ‡QvU n‡q hv‡e| cvi¯úwiK gnvKl©xq Uv‡bi d‡j b¶‡Îi ‡Pnviv GK`g e`‡j hv‡e| d‡j G‡K Aci‡K ¯úk© Kivi mgq Zv‡`i‡K N~Y©vqgvb AwZKvq Pyi“‡Ui g‡Zv ‡`Lv‡e| `y‡Uvi GKxfeb n‡e GK DËvj NUbv| `y‡Uv b¶Î ‡Rvov ‡j‡M GKwU RwUj I Db¥Ë f‡i cwiYZ n‡e| G ‡\_‡KI wbM©Z n‡e Kvwo Kvwo gnKl© Zi½| ‡kl ch©š— GwU c«vq ‡Mvj‡Ki iƒc aviY Ki‡e| GKwU eo NÈvi g‡Zv K‡i wbw`©ó bKkvi K¤úb wb‡q evR‡e I Av‡›`vwjZ n‡e| GB ¯ú›`b ‡\_‡KI wKQy gnvKl© wewKiY ‡ei n‡e| d‡j e¯—ywU AviI wKQy kw³ nviv‡e| Av‡¯— Av‡¯— GwU kvš— n‡q Avm‡e| Avi ‡k‡l bxie n‡q hv‡e|

kw³ ¶‡qi nvi Zyjbvg~jK axi n‡jI gnvwe‡k¦i KvVv‡gvi Ici gnvKl©xq wewKiY wbM©g‡bi eo `xN©‡gqv`x c«fve KvR K‡i| d‡j weÁvbx‡`i R‡b¨ eo GKwU KvR n‡jv ch©‡e¶‡Yi gva¨‡g gnvKl©xq wewKi‡Yi aviYv¸‡jvi mZ¨Zv hvPvB Kiv| CMjgÊjxi evBbvwi wbDU«b b¶Î e¨e¯’v wb‡q we‡k­lY Pvwj‡q ‡`Lv ‡M‡Q, K¶c\_ ‡QvU n‡”Q AvBb÷vB‡bi ZË¡ ‡g‡bB| d‡j gnvKl©xq wewKiY wbM©g‡bi mc‡¶ GwU GKwU mivmwi c«gvY| Z‡e AviI wbwðZ n‡Z n‡j c…w\_exi ‡Kv‡bv cix¶vMv‡i G‡K kbv³ Ki‡Z cvi‡Z n‡e| gnvKl© Zi½ aivi R‡b¨ eû M‡elbv `j hš¿ evwb‡q‡Qb| Z‡e AvR ch©š— ‡Kv‡bv hš¿B G Zi½ aivi g‡Zv ms‡e`bkxj n‡Z cv‡iwb| gnvKl©xq wewKi‡Yi wbwðZ c«gvY ‡c‡Z n‡j Avgv‡`i‡K m¤¢eZ bZyb c«R‡b¥i wW‡U±‡ii R‡b¨ A‡c¶v Ki‡Z n‡e4|

`y‡Uv wbDU«b b¶‡Îi wgj‡b GKwU eo wbDU«b b¶Î ev e­¨vK ‡nvj ‰Zwi n‡Z cv‡i| GKwU wbDU«b b¶Î I GKwU e­¨vK ‡nvj ev `ywU e­¨vK ‡nvj wg‡j Aek¨B GKwU e­¨vK ‡nvj ‰Zwi Ki‡e| evBbvwi wbDU«b b¶Î‡`i g‡ZvB G‡¶‡ÎI wKQy gnvKl©xq Zi½ kw³ ¶q n‡e| mv‡\_ \_vK‡e evRbv I K¤úb| gnvKl© Zi‡½i ¶gZv Kgvi mv‡\_ mv‡\_ G c«wµqvI axi n‡q Avm‡e|

e­¨vK ‡nv‡ji wgjb ‡\_‡K ‡h gnvKl©xq kw³ msM«n Kiv hv‡e Zvi ZvwË¡K Av‡jvPbv ‡ek AvKl©Yxq| 1970 Gi `k‡K GB ZvwË¡K welq¸‡jv wb‡q KvR K‡ib iRvi ‡cb‡ivR, w÷‡db nwKs, eª¨vÛb KvU©vi, ‡i‡gv ivwdwb, j¨vwi ¯§vi c«gyL| hw` e­¨vK ‡nvj `ywU AN~Y©bkxj I GKB f‡ii nq, Zvn‡j ‡gvU fi-kw³i c«vq 29 kZvsk msM«n Kiv hv‡e| AvaywbK c«hyw³ ev Ab¨ ‡Kv‡bv ‡KŠkj Kv‡R jvMv‡Z cvi‡j nqZ H kw³UyKy ïay gnvKl©xq wewKiY wn‡m‡e mxgve× \_vK‡e bv| Z‡e c«vK…wZKfv‡e e­¨vK ‡nv‡ji wgjb N‡U ‡M‡j ‡ewkifvM kw³B wKš‘ GB c«vq A`…k¨ iƒc a‡iB Avm‡e| e­¨vK ‡nvjiv hw` c`v\_©we`¨vi AvB‡b Aby‡gvw`Z m‡e©v”P nv‡i (c«vq Av‡jvi ‡e‡M) G‡K Ac‡ii D‡ëv w`‡K Ny‡i wgwjZ nq, Zvn‡j 50 fvM fi-kw³ wbM©Z n‡e|

Aek¨ ZvwË¡Kfv‡e GZ ‡ewk cigwvYUvI m‡e©v”P mxgv bq| e­¨vK ‡nv‡ji Avevi ‰e`¨ywZK PvR©I \_vK‡Z cv‡i| GKwU PvwR©Z e­¨vK ‡nv‡ji ‰e`¨ywZK ‡¶Î ‡hgb \_v‡K, ‡Zgwb \_v‡K gnvKl©xq ‡¶Î| `ywU ‡¶ÎB kw³ aviY Ki‡Z cv‡i| abvZ¥K PvR©avix GKwU e­¨vK ‡nvj FYvZ¥K PvR©avix Aci GKwU e­¨vK ‡nv‡ji mv‡\_ wgwjZ n‡j wKQy kw³ wbM©Z nq| GB c«wµqvq Zwo”Py¤^Kxq Ges gnvKl©xq `yB iKg kw³B ‡ewi‡q Av‡m|

GB wbM©g‡bi GKwU mxgv Av‡Q| KviY GKwU wbw`©ó f‡ii GKwU e­¨vK ‡nvj ‡Kej GKwU m‡e©v”P mxgvi ‰e`¨ywZK PvR© enb Ki‡Z cv‡i| GKwU AN~Y©bkxj e­¨vK ‡nv‡ji R‡b¨ ‡mB mxgv wba©vwiZ nq Gfv‡e: `y‡Uv AweKj GKB iKg e­¨vK ‡nv‡ji K\_v fveyb| G‡`i PvR© GKB| K…òMnŸi‡`i gnvKl©xq ‡¶‡Îi d‡j G‡`i g‡a¨ AvKl©Y KvR Ki‡e| Ab¨ w`‡K, Zwor e‡ji Kvi‡Y KvR Ki‡e weKl©Y (mgag©x PvR© weKl©Y K‡i)| PvR© I f‡ii AbycvZ GKwU m¼U gv‡b ‡cŠuQ‡j GB `yB wecixZag©x ej G‡K Ac‡ii mgvb n‡q hvq| d‡j K…òMnŸi‡`i g‡a¨ ‡Kv‡bv ‡bU ej \_vK‡e bv| GKwU K…òMnŸ‡ii m‡e©v”P Kx cwigvY ‰e`¨ywZK PvR© \_vK‡Z cvi‡e Zv GB k‡Zi« gva¨‡gB wba©vwiZ nq| nqZ fve‡Qb, K…òMnŸ‡ii PvR© Gi ‡P‡q ‡ewk Kivi ‡Póv Ki‡j Kx NU‡e? GUv Kivi GKwU Dcvq n‡jv K…òMnŸ‡i AviI ‡ewk PvR© c«‡ek Kwi‡q ‡`Iqv| Gi gva¨‡g ‰e`¨ywZK PvR© evo‡e| wKš‘ ‰e`¨ywZK weKl©Y ‡VKv‡Z ‡h KvR m¤úbœ n‡e Zv‡Z wKQy kw³ e¨q n‡e| GB kw³UyKyI K…òMnŸ‡i c«‡ek Ki‡e| ‡h‡nZy kw³I f‡ii Av‡iK iƒc (E=mc2 m~ÎwU g‡b Av‡Q wbðqB), d‡j K…ònŸi fvix I eo n‡q hv‡e| mn‡RB wnmve K‡i ‡`Lv‡bv hvq, GB c«wµqvq fi Pv‡Ri« ‡P‡q ‡ewk ev‡o| d‡j PvR© I f‡ii AbycvZ Avm‡j K‡g hvq| Avi GB mxgv AwZµg Kivi c«‡PóvI nq e¨\_©|

GKwU PvwR©Z K…òMnŸ‡ii ‰e`¨ywZK ‡¶Î Gi ‡gvU f‡ii wKQy As‡ki ‡hvMvb ‡`q| m¤¢ve¨ m‡e©v”P PvR© aviYKvix K…òMnŸ‡ii ‡¶‡Î ‰e`¨ywZK ‡¶Î ‡\_‡K Av‡m A‡a©K fi| hw` `ywU AveZ©bnxb K…òMnŸ‡ii g‡a¨ wecixZ wP‡ýi m‡e©v”P PvR© \_v‡K, Zvn‡j Zviv G‡K Aci‡K gnvKl©xq ej Øviv AvKl©Y Ki‡e, Avevi ‰e`¨ywZK ej ØvivI AvKl©Y Ki‡e| Zviv wgwjZ n‡q ‡M‡j ‡e`¨ywZK PvR© c«kwgZ n‡q hv‡e| ‰e`¨ywZK PvR© ‡eiI K‡i ‡bIqv hv‡e| ZvwË¡Kfv‡e GUv H wm‡÷‡gi ‡gvU f‡ii 50 kZvsk ch©š— n‡Z cv‡i|

kw³ msM«‡ni cig m‡e©v”P mxgv AR©b Kiv m¤¢e n‡e hw` `ywU e­¨vK ‡nvjB AveZ©b Ki‡Z \_v‡K Avi hw` Zv‡`i ‰e`¨ywZK PvR© nq wecixZag©x| Zvn‡j ‡gvU fi-kw³i `yB-Z…Zxqvsk ch©š— wbM©Z n‡e| GUv wVK ‡h GB gvb¸‡jvi ¸i“Z¡ Av‡Q ïay ZvwË¡K `…wó‡KvY ‡\_‡KB| KviY ev¯—e GKwU e­¨vK ‡nv‡ji A‡bK ‡ewk ‰e`¨ywZK PvR© \_vKvi m¤¢vebv Lye Kg| ZvQvov `ywU e­¨vK ‡nvj ‡h Av`k© Dcv‡qB wgwjZ n‡e ‡m m¤¢vebvI Kg| hw` bv ‡Kv‡bv DbœZ c«hyw³i AwaKvix RvwZ ‡mUv NUv‡Z m¶g nq| Z‡e `ywU e­¨vK ‡nvj hw` Lye ‡ewk Av`k© Dcv‡q wgwjZ bvI nq ZeyI m¤¢eZ c«vq Zvr¶wYKfv‡e kw³ wbM©Z n‡e| `ywU e¯—yi wgwjZ fi-kw³i D‡j­LL‡hvM¨ GKwU Ask kw³B Gfv‡e wbM©Z n‡e| GUv‡K eû eQi a‡i Pj‡Z \_vKv b¶‡Îi wbDwK¬qvi wdDkb wewµqvi mv‡\_ Zyjbv Kiv ‡h‡Z cv‡i, hvi gva¨‡g b¶Î gvÎ GK kZvsk kw³ wbM©Z K‡i|

GB gnvKl©xq NUbv GKwU w`K ‡\_‡K LyeB ¸i“Z¡c~Y©| wdDkb wewµqvi R¡vjvwb ‡kl n‡q ‡M‡jB ‡h GKwU b¶Î G‡Kev‡i gviv hvq Zv wKš‘ bq| GKwU m¼ywPZ A½v‡i cwiYZ nevi ci GKwU D¾¡j M¨vmxq ‡MvjK AvKv‡i b¶ÎwU wdDkb wewµqvi ‡P‡qI A‡bK ‡ewk cwigvY kw³ wbM©Z Kivi ¶gZv iv‡L| G welqwU fv‡jv K‡i ‡evSv ‡M‡Q c«vq wek eQi Av‡M| G aviYv Kv‡R jvwM‡q c`v\_©we` I e­¨vK ‡nvj k‡ãi RbK Rb ûBjvi GKwU mf¨Zvi K\_v Kíbv K‡i‡Qb, hviv Zv‡`i DË‡ivËi kw³i Pvwn`vi K\_v we‡ePbv K‡i wb‡R‡`i b¶‡Îi RMr ‡\_‡K ‡ewi‡q G‡m GKwU N~Y©bkxj e­¨vK ‡nv‡ji cv‡k evwo evwb‡q‡Q| c«wZw`b Zviv Zv‡`i eR¨©¸‡jv U«v‡K fwZ© K‡i Lye wn‡me K‡i evbv‡bv c‡\_ e­¨vK ‡nv‡ji w`‡K cvwV‡q ‡`q| e­¨vK ‡nv‡ji Kv‡Q G‡m U«v‡Ki c`v\_©¸‡jv ‡X‡j ‡`Iqv nq| Gfv‡e wPiKv‡ji R‡b¨ eR¨©¸‡jvi mwVK e¨e¯’vcbv wbwðZ nq|

cZbkxj e¯—y¸‡jv e­¨vK ‡nv‡ji w`‡K GwM‡q hvevi mgq ‡nv‡ji D‡ëv w`‡K AveZ©b K‡i| d‡j e­¨vK ‡nv‡ji N~Y©b wKwÂZ evavM«¯’ nq| Avi Zvi d‡j e­¨vK ‡nv‡ji GB N~Y©bkw³UyKy ‡ewi‡q Av‡m| d‡j DbœZ mf¨Zvi gvby‡liv Zv‡`i wkí-KviLvbvq ‡mB kw³ e¨envi Ki‡Z cv‡i|5 d‡j GB c×wZi `y‡Uv jvf| me¸‡jv eR¨© wPiZ‡i we`vq n‡jv| wKš‘ we`vq nevi mgq w`‡q ‡Mj g~j¨evb A‡bKLvwb kw³| Gfv‡e H mf¨Zvi gvby‡liv c«‡qvR‡bi Av‡jv‡K GKwU g…Z b¶Î ‡\_‡K wecyj cwigvY kw³ mÂq Ki‡Z cv‡ib| hZUv kw³ b¶ÎwU Zvi cy‡iv Av‡jv‡Kv‡¾¡vj6 Rxe‡bI wbM©Z K‡iwb|

GUv wVK ‡h e­¨vK ‡nvj ‡\_‡K kw³ mÂ‡qi welqUv‡K weÁvb KíKvwnwb g‡b n‡”Q| Z‡e c«vK…wZKfv‡eB c«Pyi cwigvY c`v‡\_i« Awbevh© wVKvbv wKš‘ e­¨vK ‡nvj| ‡mUv n‡Z cv‡i `yBfv‡e| nq c`v\_©¸‡jv Ggb GK b¶‡Îi Dcv`vb ‡hwU m¼ywPZ n‡q e­¨vK ‡nv‡j cwiYZ n‡Z hv‡”Q| A\_ev c`v\_©¸‡jv ‡Kv‡bvfv‡e e­¨vK ‡nv‡ji g‡a¨ P‡j hv‡e| e­¨vK ‡nvj wb‡q ‡jKPvi w`‡Z ‡M‡jB gvbyl Avgv‡K wR‡Ám K‡i, ‡Kv‡bv wKQy e­¨vK ‡nv‡j P‡j ‡M‡j Zvi Kx N‡U? Aí K\_vq DËi n‡jv, Avgiv Rvwb bv| ejv P‡j, e­¨vK ‡nvj m¤ú‡K© Avgv‡`i Rvbvi GKgvÎ Dcvq ZvwË¡K ch©v‡jvPbv I MvwYwZK g‡Wwjs| GKUy Av‡M ‡hUv ejjvg GUvI|

e­¨vK ‡nv‡ji msÁv Abymv‡iB wKš‘ Avgiv evB‡i ‡\_‡K Gi ‡fZ‡ii wKQy ‡`L‡Z cvB bv| AZGe, Avgv‡`i e­¨vK ‡nvj ch©š— ch©‡e¶‡Yi my‡hvM \_vK‡jI (‡hUv Avm‡j Avgv‡`i ‡bB) Gi ‡fZiUvq Kx Pj‡Q ‡mUv Avgiv KLbI Rvbe bv| Z‡e G‡¶‡Î Av‡cw¶KZv ZË¡ Avgv‡`i‡K Avkvi Av‡jv ‡`Lvq| e­¨vK ‡nv‡ji Aw¯—‡Z¡i K\_vI Rvwb‡qwQj GB ZË¡wUB| ‡Kv‡bv b‡fvPvix e­¨vK ‡nv‡ji ‡fZ‡i P‡j Kx NU‡e ZË¡wUi gva¨‡g Avgiv ‡mUv Abygvb Ki‡Z cvwi| GLb Avgiv GB ZvwË¡K djvdj¸‡jvi mvigg©B ‡`Le|

e­¨vK ‡nv‡ji c…ô Avm‡j wbQKB GKwU MvwYwZK KvVv‡gv| mwZ¨Kvi ‡Kv‡bv c…‡ôi wKš‘ ‡Kv‡bv Aw¯—Z¡ ‡bB| Av‡Q ïayB dvuKv ¯’vb| cZbkxj b‡fvPvix ‡fZ‡i c«‡e‡ki mgq we‡kl wKQyB ‡`L‡eb bv| Zvic‡iI c…‡ói wKš‘ GKwU wbw`©ó I wKQyUv PgKc«` ‡fŠZ (physical) Zvrch© Av‡Q| ‡nv‡ji ‡fZ‡i gnvKl© GZ kw³kvjx ‡h Av‡jvI ‡mLv‡b AvU‡K Av‡Q| ‡ei n‡Z B”QyK Av‡jvi ‡dvUb KYv wcwQ‡q ‡h‡Z ev a¨ nq| Zvi gv‡b, e­¨vK ‡nvj ‡\_‡K Av‡jv ‡ewi‡q Avm‡Z cv‡i bv| Avi G Kvi‡YB evB‡i ‡\_‡K e­¨vK ‡nvj‡K ‡`Lv hvq bv| Avi ‡Kv‡bv e¯—y ev Z\_¨ Av‡jvi ‡P‡q ‡Rv‡i QyU‡Z cv‡i bv e‡j GKevi Gi mxgvbvq c«‡ek K‡i ‡dj‡j ‡Kv‡bv wKQyB Avi ‡mLvb ‡\_‡K ‡ei n‡Z cv‡i bv| ‡h mg¯— NUbv e­¨vK ‡nv‡ji Af¨š—‡i NU‡e, Zv wPiKvjB evB‡ii `k©‡Ki `…wói Avov‡jB ‡\_‡K hv‡e| G Kvi‡Y e­¨vK ‡nv‡ji c…ô‡K7 ejv nq NUbv w`Mš— (event horizon)| KviY GB w`Mš— e­¨vK ‡nv‡ji ‡fZ‡i I evB‡i NUv NUbv‡K Avjv`v K‡i ‡`q| w`M‡š—i ‡fZ‡ii NUbv Avgiv ‡`wL bv| ‡`wL evB‡ii NUbv| Z‡e `…wói Avovj nevi welqwU wKš‘ GKgyLx| e­¨vK ‡nv‡ji ‡fZ‡ii b‡fvPvix‡K Avgiv bv ‡`L‡jI b‡fvPvix wKš‘ ‡fZi ‡\_‡K evB‡ii gnvwek¦ ‡`L‡Z cv‡eb|

b‡fvPvix hZB ‡fZ‡i hv‡eb, gnvK‡li« \_vev ZZB evo‡e| Gi GKwU c«fve n‡jv kvixwiK weK…wZ| b‡fvPvixi cv c«\_‡g e­¨vK ‡nv‡j c«‡ek Ki‡j gv\_vi ‡P‡q cv Gi ‡K›`« ‡ewk Kv‡Q \_vK‡e| d‡j gnvK‡li« kw³ cv‡q ‡ewk Abyf~Z n‡e| d‡j, cv‡q bx‡Pi w`‡K Zxe« Uvb Abyf~Z n‡e| G Kvi‡Y b‡fvPvixi kixi ‰`N¨© eivei c«mvwiZ n‡q hv‡e| GKB mv‡\_ Ges GKB w`‡K wKš‘ b‡fvPvixi Nv‡oI Uvb co‡e| d‡j f`«‡jvK wPKbI n‡q hv‡eb| GB ‡h j¤^v I wPKb n‡q hvevi c«wµqv, G‡K A‡bK mgq ejv nq ù¨v‡NwUwd‡Kkb ev ‡mgvB c«fve (spaghettification)|

ZË¡ ej‡Q, e­¨vK ‡nv‡ji ‡K‡›`« gnvKl© n‡q hvq mxgvnxb| Avi gnvK‡li« ewntc«Kvk ‡Zv N‡U ¯’vb-Kv‡ji eµZvi gva¨‡g| d‡j gnvKl© kw³kvjx nevi mv‡\_ mv‡\_ ¯’vb-Kv‡ji eµZvI n‡q hvq mxgvnxb| MwY‡Zi fvlvq G Ae¯’vi bvg ‡¯úmUvBg wmO&¸jvwiwU| GUv n‡jv ¯’vb-Kv‡ji Ggb GKwU mxgvbv ev c«vš— hv‡Z ¯’vb-Kv‡ji mvaviY aviYvi ‡Kv‡bv ¯’vb ‡bB| eû c`v\_©we‡`i wek¦vm, e­¨vK ‡nv‡ji ‡fZ‡ii wmO&¸jvwiwU mwZ¨Kvi A‡\_©B ¯’vb-Kv‡ji Kei iPbv K‡i| ‡Kv‡bv e¯—y GLv‡b ‡cŠu‡Q ‡M‡j aŸsm Awbevh©| Avm‡jB hw` ‡mUv nq, Zvn‡j b‡fvPvixi kixi P‡j hv‡e wmO&¸jvwiwU‡Z| Zxe« ‡mgvB c«fv‡ei GB KvRwU‡Z mgq jvM‡e gvÎ GK b¨v‡bv‡m‡KÛ8|

wPÎ 5.2

eµZvi G‡Kev‡i ‡K‡›`« Av‡Q e­¨vK ‡nv‡ji wmO&¸jvwiwU| ‡`‡LB ‡evSv hv‡”Q, e­¨vK ‡nvj ¯’vb-Kvj‡K ‡hfv‡e evuwK‡q ‡`q, Zvi d‡j evB‡i ‡\_‡K ‡fZ‡i hvIqv hvq, wKš‘ ‡fZi ‡\_‡K evB‡i bq|

Avgv‡`i AvKvkM½v Qvqvc‡\_ \_vKv m¤¢ve¨ e­¨vK ‡nv‡ji fi GK ‡KvwU ‡mŠif‡ii mgvb| Ggb f‡ii I AN~Y©bkxj ‡Kv‡bv e­¨vK ‡nv‡ji ‡¶‡Î NUbv w`Mš— ‡\_‡K wmO&¸jvwiwU‡Z wM‡q cUj Zyj‡Z mgq jvM‡e c«vq wZb wgwbU| GB ‡kl wZwb wgwbU (jv÷ w\_« wgwbUm) ‡gv‡UI Avivg`vqK n‡e bv| ev¯—‡e Avm‡j wmO&¸jvwiwU‡Z hvevi eû Av‡MB ‡mgvB c«fv‡ei Kvi‡Y ‡ePviv gviv co‡eb| GB ‡kl mg‡q b‡fvPvix gnvkq ‡Kv‡bvfv‡eB c«vYNvZx wmO&¸jvwiwU‡K ‡Pv‡L ‡`L‡Z cvi‡e bv| KviY GB we›`ywU ‡\_‡K ‡Kv‡bv Av‡jv Avm‡Z cv‡i bv| e­¨vK ‡nvjwUi fi hw` gvÎ GK ‡mŠif‡ii mgvb nq, Zvn‡j Gi e¨vmva© n‡e c«vq wZb wK‡jvwgUvi| G‡¶‡Î NUbv w`Mš— ‡\_‡K wmO&¸jvwiwU‡Z ‡cŠuQ‡Z mgq jvM‡e gvÎ K‡qK gvB‡µv‡m‡KÛ9|

cZbkxj b‡fvPvixi c«m½ KvVv‡gv ‡\_‡K aŸsm n‡Z mgq jv‡M Lye Kg mgq| Z‡e e­¨vK ‡nv‡ji mg‡qi weK…wZUv Ggbfv‡e N‡U ‡h `~i ‡\_‡K ‡`L‡j b‡fvPvixi ‡k‡li w`‡Ki ågY‡K Lye ax‡i Pj‡Q e‡j g‡b n‡e| b‡fvPvix NUbv w`M‡š—i hZ Kv‡Q hv‡eb, `~‡ii `k©‡Ki Kv‡Q b‡fvPvixi Av‡kcv‡ki NUbv¸‡jv ZZ ‡ewk ax‡i Pj‡Q e‡j g‡b n‡Z \_vK‡e| Ges Avm‡j g‡b n‡e b‡fvPvixi NUbv w`M‡š— ‡cŠuQ‡Z Amxg cwigvY mgq jvM‡Q| d‡j evB‡ii `ywbqvq ‡hUv‡K Amxg mgq g‡b n‡”Q, b‡fvPvix ‡mUvi wkKvi n‡”Qb gyn~‡Zi« g‡a¨B| GB w`K ‡\_‡K fve‡j e­¨vK ‡nvj Avm‡j gnvwe‡k¦i ‡kl c«v‡š—i GKwU `iRv| GKwU gnvRvMwZK AÜMwj| ‡ei nevi Ggb GK c\_ ‡h c\_ wb‡q hv‡e bv ‡Kv‡bv wVKvbvq| e­¨vK ‡nvj ¯’v‡bi Lye ‡QvÆ GKwU AÂj| mg‡qi ‡hLv‡b BwZ N‡U| hviv gnvwe‡k¦i cwiYwZ m¤ú‡K© Rvb‡Z B”QyK, GKwU e­¨vK ‡nv‡j Svuc w`‡q ‡mUv Zviv wb‡RivB ‡R‡b wb‡Z cvi‡eb|

GUv wVK ‡h gnvKl©B c«K…wZi me‡P‡q `ye©j ej| wKš‘ Gi Zx¶&Y‡f`x I mw¤§wjZ wµqvi IciB wbfi« Ki‡Q fwel¨r| wew”Qbœ gnvRvMwZK e¯—y wKsev mgM« gnvwek¦ `y‡Uvi R‡b¨B GB K\_v c«‡hvR¨| ‡h Zxe« gnvKl©xq AvKl©Y GKwU b¶‡Î ¸wU‡q ‡d‡j, ‡mB GKB gnvKl© KvR K‡i mvwe©Kfv‡e gnvwe‡k¦i AviI eo gvcKvwV‡ZI| GB AvKl©‡Yi dj Lye m~²fv‡e wbfi« K‡i AvKl©Y m…wói R‡b¨ Dcw¯’Z e¯—yi cwigv‡Yi Ici| ‡mUv Rvb‡Z n‡j Avgv‡`i‡K gnvwe‡k¦i IRb cwigvc Ki‡Z n‡e|

Abyev`‡Ki ‡bvU:

8. ev¯—‡e Kiv Am¤¢e ev KwVb Ggb ‡¶‡Î we‡klZ Kw¤úDUv‡i mvnv‡h¨ welqwU wb‡q KvR Kivi bvg wmgy‡jkb| ‡hgb, Kw¤úDUvi ‡c«vM«v‡g e­¨vK ‡nv‡ji bgybv evbv‡bv| ‡Kv‡bv Z‡Ë¡i M«nY‡hvM¨Zv wbY©q Kivi R‡b¨ A‡bK mgq Kw¤úDUvi wmgy‡jkb K‡i ‡WUv ‰Zwi Kiv nq| MwYZ I cwimsL¨v‡bi Gi e¨envi Lye ‡ewk| Z‡e Kw¤úDUvi QvovI wmgy‡jkb nq| ‡hgb 2q wek¦hy‡×i mgq ‰mb¨‡`i Abykxjb Kiv‡bvi R‡b¨ Kv‡Vi bKj ‡Nvovi c«Pjb wQj| AvRKvj evmvq ‡`Šov‡bvi R‡b¨ ‡U«Wwgj Lye Rbwc«q| bKj ‡`Š‡oi G c×wZI wKš‘ GK ai‡bi wmgy‡jkb|

9. eZ©gv‡b wmMbvm G·-1 Gi e­¨vK ‡nvj nevi e¨vcv‡i e¨vcK ¯^xK…wZ i‡q‡Q|

10. c«evnxi (Zij ev M¨vm) wewfbœ ¯—‡ii g‡a¨ Nl©‡Yi d‡j D™¢~Z ej|

11. 2015 mv‡j gnvKl© Zi½ c«\_g mivmwi ch©‡e¶Y Kiv m¤¢e nq| wbwðZ n‡q ‡NvlYv ‡`Iqv nq 2016 mv‡j| 2017 mv‡j G wel‡q c`v\_©we`¨vq ‡bv‡ej cyi¯‹vi jvf K‡ib wKc \_b©mn wZbRb weÁvbx|

12. GUvi mv‡\_ wgj Av‡Q ev¯—‡e c«‡qvM Kiv GKwU ‡KŠk‡ji| bvg Mª¨vwf‡Ukbvj w¯­skU| c…w\_ex ‡\_‡K `~i gnvKv‡k hvb ‡c«i‡Yi mgq G‡K GK ev GKvwaK M«‡ni K¶c‡\_i Lye Kv‡Q cvwV‡q ‡`Iqv nq| Av‡M ‡\_‡K \_vKv wbR¯^ ‡e‡Mi Kvi‡Y M«nwUi gnvKl© gnvKvkhvb‡K cy‡ivcywi AvU‡K ‡dj‡Z cv‡i bv| gnvKvkhvb c‡i Avevi mswkmœó e¯—yi gnvKl© ‡¶Î ‡\_‡K ‡ewi‡q Av‡m| wKš‘ mv‡\_ wb‡q Av‡m e¯—ywUi gnvKl©xq kw³i GKUv Ask| Gfv‡e wb‡Ri ¶gZv evwo‡q ‡bq hvb| Z‡e mswkmœó M«‡ni kw³ ¶q nq Lye bMY¨ cwigvY|

13. A\_©vr, b¶ÎwU hLb wdDkb wewµqvi gva¨‡g Av‡jv w`Z|

14. g‡b ivL‡Z n‡e, GB c…ô wKš‘ wbQK MvwYwZK GKUv mxgv| ev¯—e ‡Kv‡bv c…ô bq|

15. GK b¨v‡bv‡m‡KÛ n‡jv GK ‡m‡K‡Ûi GKk ‡KvwU fv‡Mi GK fvM|

16. GK gvB‡µv‡m‡KÛ n‡jv GK ‡m‡K‡Ûi 10 j¶ fv‡Mi GK fvM|

lô Aa¨vq

gnvwe‡k¦i IRb cwigvc (Weighing The Universe)

c«vqB ejv nq, Ic‡i ‡h hvq, Zv‡K bx‡P bvg‡ZB n‡e| AvKv‡ki w`‡K Qyu‡o gviv ‡Kv‡bv e¯—y gnvK‡li« Uv‡b AvUKv c‡o| eva¨ nq bx‡P ‡b‡g Avm‡Z| wKš‘ me mgq Zv nq bv| h‡\_ó ‡Rv‡i Pj‡j e¯—ywUi c‡¶ c…w\_exi gnvKl© ‡\_‡K wPiZ‡i gyw³ ‡c‡q gnvk~‡b¨ P‡j hvIqv m¤¢e| wd‡i Avm‡Z n‡e bv Avi KLbI| ‡hme i‡K‡Ui mvnv‡h¨ wewfbœ M«‡n hvb cvVv‡bv nq ‡m¸‡jv GB ‡eM (gyw³ ‡eM) AR©b K‡i|

c…w\_exi ‡¶‡Î GB gyw³‡e‡Mi gvb ‡m‡K‡Û c«vq 11 wK‡jvwgUvi| NÈvq 25 nvRvi gvBj| GB ‡eM KbKW© wegv‡bi wek ¸‡YiI ‡ewk| GB m¼U gvb c…w\_exi fi (G‡Z hZUyKy c`v\_© Av‡Q) I e¨vmva© `y‡Uvi IciB wbfi« Ki‡Q| GKwU wbw`©ó f‡ii e¯—y hZ ‡QvU n‡e, Gi c…‡ô gnvKl© ZZ ‡ewk kw³kvjx n‡e| ‡mŠiRMr ‡\_‡K ‡ei n‡Z cvivi A\_© n‡jv m~‡hi« gnvKl©‡K Rq Kiv| G‡¶‡Î gyw³ ‡e‡Mi gvb ‡m‡K‡Û 618 wK‡jvwgUvi| Avgv‡`i wgwéI‡q ev AvKvkM½v Qvqvc\_ ‡\_‡K ‡ei n‡ZI ‡m‡K‡Û K‡qKk wK‡jvwgUvi ‡eM jvM‡e| Ab¨ w`‡K, GKwU wbDU«b b¶‡Îi g‡Zv Nb e¯—y ‡\_‡K ‡ei n‡q ‡h‡Z ‡m‡K‡Û K‡qK AhyZ wK‡jvwgUvi ‡eM c«‡qvRb| Avi e­¨vK ‡nvj ‡\_‡K ‡ei n‡Z ‡Zv jvM‡e Av‡jvi ‡P‡q (‡m‡K‡Û 3 j¶ wK‡jvwgUvi) ‡ewk ‡eM|

Avi gnvwek¦ ‡\_‡K ‡ei n‡Z PvB‡j? 2q Aa¨v‡q Avwg e‡jwQ, gnvwe‡k¦i ‡Kv‡bv c«vš— Av‡Q e‡j g‡b nq bv| d‡j, ‡ei nevi c«kœB Av‡m bv| wKš‘ Avgiv hw` a‡i ‡bB c«vš— Av‡Q Ges AviI aiv hvK, GB c«vš— n‡jv Avgv‡`i `…wómxgvi ‡kl we›`y‡Z (c«vq ‡`o nvRvi Av‡jvKel© `~‡i), Zvn‡j gyw³ ‡eM n‡e c«vq Av‡jvi ‡e‡M mgvb| GB djvdj Lye Zvrch©c~Y©| KviY, ‡`‡L g‡b n‡”Q, m‡e‡P‡q `~‡ii Qvqvc\_iv Avgv‡`i ‡\_‡K c«vq Av‡jvi ‡e‡M `~‡i m‡i hv‡”Q| ‡`‡L ‡Zv g‡b nq, Qvqvc\_iv GZ `~‡i mi‡Q ‡h Zviv nqZ gnvwek¦ ‡\_‡K ‡eiB n‡q hv‡e| ‡mUv bv n‡jI G‡K Aci ‡\_‡K wew”Qbœ ‡hb n‡eB| wd‡i Avm‡e bv KLbI|

‡`Lv hv‡”Q, c«mviYkxj gnvwek¦ Avm‡j A‡bKUvB c…w\_ex ‡\_‡K wbw¶ß e¯—yi g‡ZvB AvPiY Ki‡Q| hw`I gnvwe‡k¦i mywbw`©ó ‡Kv‡bv c«vš— ‡bB| c«mvi‡Yi MwZ Lye ‡ewk n‡j mi‡Z \_vKv Qvqvc\_¸‡jv gnvwe‡k¦i me c`v‡\_i« mw¤§wjZ gnvKl©xq eÜb ‡\_‡K Avjv`v n‡q hv‡e| Avi G‡Z K‡i c«mviY Pj‡e wPiKvj| Ab¨ w`‡K, c«mviY axi n‡j GK mgq gnvwe‡k¦i c«mviY ‡\_‡g hve| gnvwek¦ m¼ywPZ n‡Z ïi“ Ki‡e| Qvqvc\_iv ZLb Avevi Ôbx‡Pi w`‡KÕ bvg‡Z ïi“ Ki‡e| ‡kl ch©š— NU‡e P~W়vš— gnvRvMwZK wech©q| cZb n‡e gnvwe‡k¦i|

Gi g‡a¨ ‡KvbwU NU‡e? `ywU msL¨vi Zyjbvi g‡a¨ Gi DËiwU wbfi« Ki‡Q| GKwU n‡jv c«mvi‡Yi MwZ| Av‡iKwU n‡jv gnvwe‡k¦i ‡gvU gnvKl©xq Uvb, hv‡K Avm‡j gnvwe‡k¦i IRb ejv P‡j| gnvKl©xq Uvb hZ ‡ewk n‡e, ‡m Uvb‡K AM«vn¨ Ki‡Z n‡j gnvwek¦‡K ZZ ‡ewk `ª“Z c«mvwiZ n‡Z n‡e| ‡R¨vwZwe©`iv ‡jvwnZ miY c«fve1 ch©‡e¶Y K‡i mivmwi c«mviY nvi ‡ei Ki‡Z cv‡ib| wKš‘ gnvwe‡k¦i fv‡M¨ Kx NU‡e ‡m c«‡kœi mgvavb nqwb| wØZxq ivwkwU, gv‡b gnvwe‡k¦i IRb wb‡q mgm¨vUv GLbI i‡q ‡M‡Q|

gnvwe‡k¦i IRb Kxfv‡e Rvbv m¤¢e? KvRUv‡K m‡\_ó KwVb g‡b n‡Z cv‡i| ‡evSvB hv‡”Q, GUv mivmwi Rvbvi ‡Kv‡bv Dcvq ‡bB| wKš‘ gnvKl© ZË¡ Kv‡R jvwM‡q Avgiv Gi IRb m¤ú‡K© aviYv ‡c‡Z cvwi| IR‡bi GKwU wbgœmxgv mn‡RB cvIqv hvq| M«n‡`i Ici m~‡hi« gnvKl©xq Uvb cwigvc K‡i m~‡hi« IRb (fi) Rvbv hvq| Avgiv Rvwb, Avgv‡`i wgwéI‡q M¨vjvw·‡Z c«vq GKk wewjqb (`k nvRvi ‡KvwU) b¶Î Av‡Q| G‡`i Mo fi Avgv‡`i m~‡hi« f‡ii mgvb| d‡j Gi gva¨‡g Avgiv Avgv‡`i M¨vjvw·i b¨~bZg f‡ii GKwU c«v\_wgK wnmve cvB| Gevi Avgv‡`i‡K ‡`L‡Z n‡e gnvwe‡k¦ KZ¸‡jv M¨vjvw· Av‡Q| Giv msL¨vq GZ ‡ewk ‡h G‡`i‡K GK GK K‡i ‡MvYv hv‡e bv| Z‡e Abygvbwbfi« ‡ek fv‡jv GKwU wnmve n‡jv `k wewjqb (GK nvRvi ‡KvwU)| Zvn‡j me wgwj‡q `vuovq 1021 ‡mŠi fi| Ab¨ K\_vq 1048 Ub| GB M¨vjvw·¸‡jvi mgv‡e‡ki e¨vmva© c‡bi wewjqb AvjKel© a‡i wb‡j gnvwe‡k¦i gyw³‡e‡Mi b¨~bZg GKwU gvb cvIqv hv‡e| GB gvbwU `vuovq Av‡jvi ‡e‡Mi GK kZvsk| Avgiv hw` a‡i ‡bB ‡h gnvwe‡k¦i fi ïay b¶‡Îi fi wnmve K‡iB cvIqv hv‡e, Zvn‡j gnvwek¦ wb‡Ri gnvKl©xq Uvb‡K AM«vn¨ K‡i wPiKvj c«mvwiZ n‡Z \_vK‡e|2

A‡bK weÁvbxiB wek¦vm, gnvwe‡k¦i fv‡M¨ wVK GUvB NU‡e| Z‡e wKQy wKQy ‡R¨vwZwe©` I Km‡gvjwR÷ ej‡Qb f‡ii mgwó nqZ mwVKfv‡e wnmve Kiv nqwb| Avgiv ‡hme e¯—y ‡`L‡Z cvw”Q ev¯—‡e e¯—y Av‡Q Zvi ‡P‡q ‡ewk| gnvwe‡k¦i me e¯—y ‡Zv Avi D¾¡j bq| b¶Î, M«n3 I e­¨vK ‡nvj‡`i g‡Zv Aby¾¡j e¯—yiv Avgv‡`i `…wói Avov‡jB ‡\_‡K hvq| GQvovI i‡q‡Q c«Pyi cwigvY aywj I M¨vm| hv‡`i ‡ewkifvMB mn‡R ‡Pv‡L c‡o bv| AviI K\_v Av‡Q| M¨vjvw·i gvSLv‡bi ¯’vbI wKš‘ G‡Kev‡iB dvuKv bq| c`v\_© Av‡Q GLvbUvqI| Lye m¤¢e GLv‡b Av‡Q wecyj cwigvY nvjKv M¨vm|

Z‡e Av‡iKwU PgKc«` m¤¢vebvI K‡qK eQi a‡i ‡R¨vwZwe©`‡`i bRi ‡K‡o ‡i‡L‡Q| ‡h weM e¨vs‡qi gva¨‡g gnvwe‡k¦i m~Pbv, ‡mB we‡ùviYwUB Avgv‡`i ‡`Lv me e¯—yi Drm| wKš‘ Avgiv ‡`wL bv Ggb wKQy e¯—yiI Drm ‡mB GKB we‡ùviY| gnvwek¦ hw` AwZcvigvYweK KYvi GK DËß Avavi wn‡m‡eB ïi“ n‡q \_v‡K, Z‡e mvaviY e¯—yi Dcv`vb Avgv‡`i cwiwPZ B‡jKU«b, ‡c«vUb I wbDU«b Qvov Ab¨me KYvI wecyj cwigvY ‰Zwi n‡q \_vK‡e| KYvc`v\_©we`iv m¤cÖwZ cix¶vMv‡i GB KYv¸‡jv kbv³ K‡i‡Qb| GB KYv¸‡jv LyeB Aw¯’wZkxj| d‡j Giv Lye `ª“ZB ¶q n‡q hvevi K\_v| Z‡e G‡`i wKQy wKQy nqZ AvRI Aewkó Av‡Q| gnvwe‡k¦i m~Pbvi aŸsmve‡kl wn‡m‡e|

GB aŸsmve‡kl¸‡jvi g‡a¨ wbDwU«‡bv me‡P‡q AvKl©Yxq| ‡mB f~Zy‡o KYv¸‡jv, hv‡`i‡K mycvi‡bvfvq Lye mwµq ‡`Lv hvq (‡`Lyb PZy\_© Aa¨vq)| Avgiv hZUyKy Rvwb, Zv‡Z wbDwU«‡bviv ¶q n‡q Ab¨ wKQy‡Z cwiYZ n‡Z cv‡i bv| (Avm‡j wbDwU«‡bv Av‡Q wZb iK‡gi| GK ai‡b wbDwU«‡bv Ab¨ wbDwU«‡bv‡Z iƒcvš—wiZ n‡Z cv‡i| GB w`KUv AvcvZZ Avgiv we‡ePbv ‡\_‡K ev` w`w”Q) d‡j weM e¨vs‡qi aŸsmve‡kl ‡\_‡K cvIqv gnvRvMwZK wbDwU«‡bv w`‡q gnvwek¦ ficyi \_vKvi K\_v| Avw`g gnvwe‡k¦ me ai‡bi AwZcvigvYweK KYv mgvbfv‡e ‰Zwi n‡qwQj a‡i wb‡j wn‡me K‡i Rvbv m¤¢e KZ¸‡jv gnvRvMwZK wbDwU«‡bv \_vKv DwPr| wn‡me K‡i ‡`Lv ‡Mj, c«wZ Nb ‡mw›UwgUv‡i wbDwU«‡bvi cwigvY nIqv DwPr 10 j¶| Ab¨ K\_vq, mvaviY e¯—yi c«wZwU KYvi wecix‡Z wbDwU«‡bvi msL¨v nIqv DwPZ c«vq GKk ‡KvwU|

`vi“Y GB djvdjwU Avgv‡K memgq gy» K‡i‡Q| c«wZ gyn~‡Z© Avcbvi ‡`‡ni g‡a¨ GKk wewjqb wbDwU«‡bv Dcw¯’Z Av‡Q| hvi c«vq meB weM e¨vs‡qi aŸsmve‡kl| Aw¯—‡Z¡i GK`g ïi“ ‡\_‡K Giv GLbI ‡gvUvgywU GKB Ae¯’vq Av‡Q| wbDwU«‡bviv Av‡jvi mgvb ev KvQvKvwQ MwZ‡Z P‡j| G Kvi‡Y Giv gyû‡Zi« g‡a¨ Avcbvi kix‡ii ‡fZi w`‡q P‡j hvq| c«wZ ‡m‡K‡Û GKk wewjqb wbDwU«‡bv GB KvR K‡i| GB Aweivg PjvPj Avgiv ‡Lqvj Kwi bv, KviY wbDwU«‡bviv mvaviY e¯—yi mv‡\_ Lye `ye©jfv‡e wµqv K‡i| d‡j G‡`i ‡Kv‡bv GKwU KYv Avcbvi ‡`‡ni g‡a¨ AvU‡K hv‡e ‡mB m¤¢vebv Lye mvgvb¨| wKš‘ AvcvZ`…wó‡Z k~b¨¯’v‡b GZ wbDwU«‡bvi Dcw¯’wZ gnvwe‡k¦i P~W়vš— cwiYwZ‡Z eo c«fve ivL‡Z cv‡i|

wbDwU«‡bviv Lye `ye©jfv‡e wµqv Ki‡jI Ab¨ me KYvi mv‡\_ Zv‡`i gnvKl©xq ej wKš‘ KvR K‡i| Zviv nqZ Av‡kcv‡ki Ab¨ KYv‡K Lye ‡ewk ‡Vjv-av°v w`‡Z cv‡i bv, wKš‘ Zv‡`i c‡iv¶ gnvKl©xq c«wZwµqv gnvwe‡k¦i IRb gvc‡Z ¸i“Z¡c~Y© f~wgKv ivL‡Z cv‡i| Zv‡`i f~wgKv KZUyKy ‡mUv Rvb‡Z n‡j Rvb‡Z n‡e Zv‡`i fi|

gnvKl© wb‡q wnmve Ki‡Z ‡M‡j `iKvi nq c«K…Z fi, wbðj fi bq| wbDwU«‡bv‡`i wbðj fi hw` KgI nq, Av‡jvi KvQvKvwQ ‡e‡M Pjvi Kvi‡Y G‡`i fi wKš‘ D‡j­L‡hvM¨ n‡q IV‡e| Avevi G‡`i fi k~b¨I n‡Z cv‡i| ‡m‡¶‡Î Giv Pj‡e Av‡jvi ‡e‡M| Zvn‡j Zv‡`i kw³i mv‡\_ Zyjbv K‡i c«K…Z fi Rvbv hv‡e| Avi gnvRvMwZK aŸsmve‡kl wn‡m‡e cvIqv wbDwU«‡bvi ‡¶‡Î GB kw³i wnmve cvIqv hv‡e weM e¨vs ‡\_‡K cvIqv kw³i AbywgZ cwigvY ‡\_‡K| wKš‘ gnvwe‡k¦i c«mvi‡Yi Kvi‡Y kw³ GKUy `ye©j n‡”Q| G Kvi‡Y g~j kw³i cwigvY‡K ms‡kvab K‡i wb‡Z n‡e| Z‡e GB ms‡kvab K‡i ‡bIqvi c‡iI ‡`Lv hv‡”Q, k~b¨ wbðj f‡ii wbDwU«‡bviv gnvwe‡k¦i ‡gvU IR‡b ‡Zgb ‡Kv‡bv f~wgKv ivL‡Z cvi‡Q bv|

Ab¨ w`‡K, wbDwU«‡bvi wbðj fi k~b¨ wK bv G e¨vcv‡i Avgiv wbwðZ bB| Avevi me ai‡bi wbDwU«‡bvi wbðj fi mgvb wK bv ‡mUvI Rvbv ‡bB Avgv‡`i| wbDwU«‡bv m¤ú‡K© eZ©gv‡b Avgiv hv Rvwb Zv‡Z G‡`i mmxg GKwU wbðj fi \_vKv Am¤¢e bq| AZGe, cix¶v Pvwj‡q ‡`L‡Z n‡e Avmj ‡KvbwU mwVK| PZy\_© Aa¨v‡qI Avgiv e‡jwQ, wbDwU«‡bvi fi \_vK‡jI ‡mUv Aek¨B Lye mvgvb¨ n‡e| fi n‡e cwiwPZ Ab¨ ‡h ‡Kv‡bv KYvi ‡P‡q Kg| wKš‘ gnvwe‡k¦ wbDwU«‡bvi msL¨v A‡bK ‡ewk nevi Kvi‡Y Lye mvgvb¨ wbðj fiI gnvwe‡k¦i ‡gvU IR‡b eo f~wgKv ivL‡e| welqwU Lye m~²fv‡e fvimvg¨ ‡g‡b P‡j| B‡jKU«‡bi (cwiwPZ KwYKv‡`i g‡a¨ me‡P‡q nvjKv) f‡ii 10 nvRvi fv‡Mi gvÎ GK fvM cwigvY fiI eo c«fve ivL‡Z m¶g|4 ‡m‡¶‡Î wbDwU«‡bv‡`i fi b¶‡Îi fi‡KI Qvwo‡q hv‡e|

GZ ‡QvU wbðj fi kbv³ Kiv Lye KwVb KvR| G welqK wewfbœ cix¶vi djvdj¸‡jvI wQj weåvwš—Ki I ci¯úiwe‡ivax| Z‡e GKwU welq Lye ‡KŠZ~n‡ji Rb¥ ‡`q| Ô1987GÕ mycvi‡bvfv ‡\_‡K cvIqv ‡M‡Q ¸i“Z¡c~Y© GKwU m~Î| Av‡MB e‡jwQ, wbDwU«‡bvi wbðj fi k~b¨ n‡j Zviv Aek¨B mevB Av‡jvi mgvb MwZ‡Z PjvPj Ki‡e| mevi MwZB wKš‘ mgvb n‡e G‡¶‡Î| wKš‘ G‡`i hw` Aí n‡jI wKQy wbðj fi \_v‡K, Zvn‡j fi bvbvb iKg n‡Z cv‡i| mycvi‡bvfv ‡\_‡K ‡ei nIqv wbDwU«‡bviv n‡e Lye ‡ZR¯^x| ZvB G‡`i wbðj fi wKQyUv \_vK‡jI Giv Pj‡e Av‡jvi Lye KvQvKvwQ MwZ‡Z| wKš‘ c…w\_ex‡Z G‡m ‡cŠuQv‡bvi Av‡M Giv A‡bK `xN© mgq a‡i PjvPj Kivi Kvi‡Y c…w\_ex‡Z G‡m ‡cŠuQ‡Z mgq LvwbKUv Kg-‡ewk jvM‡Z cv‡i| Ô1987GÕ mycvi‡bvfv ‡\_‡K Avmv wbDwU«‡bv‡`i ‡cŠuQv‡bvi mg‡qi ZviZg¨ we‡k­lY K‡i ejv hv‡e wbDwU«‡bvi m‡e©v”P wbðj fi KZ n‡Z cv‡i| Ges Gfv‡e GUv cvIqv ‡M‡Q B‡jKU«‡bi f‡ii 30 nvRvi fv‡Mi c«vq GK fvM|

Z‡e `~f©v‡M¨i e¨vcvi n‡jv, welqUvq RwUjZv AviI Av‡Q| KviY wbDwU«‡bvi c«Kvi‡f` Av‡Q G‡Ki ‡ewk| ‡ewki fvM ‡¶‡Î wbðj fi ‡ei Kivi ‡¶‡Î weÁvbx cvDwji c«¯—vweZ wbDwU«‡bv wb‡q wnmve Kiv nq| wKš‘ c‡ii wØZxq Av‡iK ai‡bi wbDwU«‡bv cvIqv ‡M‡Q| Z…Zxq Av‡iK ai‡bi wbDwU«‡bvi K\_v weM e¨vs‡qi mg‡qi| GB wZb iK‡gi wbDwU«‡bvB e¨vcK AvKv‡i ‰Zwi n‡q \_vK‡e| Gi g‡a¨ evwK `yB ai‡bi wbDwU«‡bvi f‡ii mxgv KZ n‡e Zv mivmwi ejv Lye KwVb| cix¶vg~jKfv‡e gv‡bi mxgvi cvj­v A‡bK eo| Z‡e ZvwË¡Kiv ej‡Qb, gnvwe‡k¦i f‡i wbDwU«‡bvi fi m¤¢eZ eo ‡Kv‡bv f~wgKv ivL‡Q bv| wbDwU«‡bvi fi ‡ei Kivi bZyb cix¶vg~jK c×wZi Av‡jv‡K GB aviYv e`‡jI ‡h‡Z cv‡i|

Avevi gnvwe‡k¦i IRb gvc‡Z ‡M‡j AviI gv\_vq ivL‡Z n‡e ‡h wbDwU«‡bv QvovI m¤¢ve¨ Ab¨ AviI gnvRvMwZK aŸsmve‡klI \_vK‡Z cv‡i| weM e¨vs‡qi mgq Ab¨vb¨ w¯’wZkxj I `ye©jfv‡e wµqv Kiv KYvI ‰Zwi n‡q \_vK‡Z cv‡i| n‡Z cv‡i ‡m¸‡jvi fi AviI ‡ewk| (Z‡e fi Avevi ‡ewk n‡j A‡c¶vK…Z Aí f‡ii KYvi Zyjbvq Giv Kg ‰Zwi n‡e| KviY ‡ewk f‡ii KYv ‰Zwi‡Z ‡ewk fi jv‡M) G‡`i‡K mvaviYfv‡e ejv nq DB¤ú (WIMP)| K\_vUvi c~Yi«~c n‡jv `ye©j wg\_wl&µqvq Ask ‡bIqv fvix KYv (Weakly Interacting Massive Particles)| weÁvbx‡`i c«¯—vweZ DB¤ú KYvi msL¨v A‡bK| G‡`i Mvjfiv bvgI Av‡Q| GB ‡hgb Mª¨vwfUb, wnMwm‡bv, ‡dvwU‡bv| Giv Avm‡jB Av‡Q wK bv Zv ‡KD Rv‡b bv| Z‡e Avm‡jB \_vK‡j gnvwe‡k¦i IRb gvc‡Z G‡`i f~wgKv gv\_vq ivL‡ZB n‡e|

j¶¨Yxq e¨vcvi n‡jv, DB¤ú KYv‡`i Aw¯—Z¡ Av‡Q wK bv Zv mivmwiB cix¶v K‡i ‡djv hvq| mvaviY c`v‡\_i« mv‡\_ G‡`i wg\_wl&µqvi aib ‡\_‡K GUv Abygvb Kiv hv‡e| GB wg\_w®‹qv Lye `ye©j Zv mZ¨| Z‡e wecyj cwigvY DB¤ú KYvi fi D‡j­L‡hvM¨B n‡e| Pjš— DB¤ú KYv kbv³ Ki‡Z D‡`¨vMI ‡bIqv n‡q‡Q| DËi-c~e© Bsj¨v‡Ûi GKwU je‡Yi Lwb I m¨vb dª¨vwÝ‡¯‹vi GKwU evu‡ai Kv‡Q GjvKv‡K cix¶vi ¯’vb wn‡m‡e evQvB Kiv n‡q‡Q| gnvwe‡k¦ G‡`i Dcw¯’wZ A‡bK ‡ewk a‡i wb‡j memgq Giv wecyj msL¨vq Avgv‡`i kixi (Ges c…w\_ex) ‡f` K‡i P‡j hv‡”Q| GB cix¶vi g~jbxwZ Lye `vi“Y| DB¤ú KYv cigvYyi wbDwK¬qv‡mi mv‡\_ av°v ‡L‡j ‡h kã n‡e, kbv³ Kiv n‡e ‡mB kã|

Gi Rb¨ hš¿ evbv‡bv n‡e Rv‡g©wbqvg ev wmwjK‡bi GKwU ùwUK w`‡q| hv GKwU kxZjxKiY e¨e¯’v w`‡q Ave…Z \_vK‡e| DB¤ú KYv ùwU‡Ki wbDwK¬qv‡m AvNvZ Ki‡j Gi fi‡e‡Mi Kvi‡Y wbDwK¬qvm ‡cQb w`‡K av°v Abyfe Ki‡e| G av°vi d‡j ùwUK j¨vwU‡m ‡QvÆ GKwU kã Zi½ ev K¤úb ‰Zwi n‡e| Zi½ c«mvwiZ n‡Z \_vK‡j Gi Zxe«Zv GKwU K‡g Avm‡e| cwiYZ n‡e Zvckw³‡Z| µgk `ye©j n‡Z \_vKv kã Zi½ ‡\_‡K Drcbœ Zv‡ci m~² m‡¼Z kbv³ Kivi R‡b¨ G cix¶vi bKkv c«¯—yZ Kiv n‡q‡Q| ùwU‡Ki ZvcgvÎv Kwg‡q c«vq cig k~b¨ ch©š— Avbv nq e‡j ‡h-‡Kv‡bv Zvc kw³i Avwef©ve‡KB wW‡U±i `vi“Y `¶Zvi m‡½ kbv³ K‡i ‡dj‡e|

ZvwË¡Kiv aviYv Ki‡Qb, wKQyUv Aí MwZ‡Z ‡QvUv ‡dvUvi AvK…wZi DB¤ú‡`i Svu‡Ki g‡a¨ Wy‡e Av‡Q Qvqvc\_¸‡jv| GB DB¤ú‡`i fi nqZ GKwU ‡\_‡K GK nvRvi ‡c«vU‡bi f‡ii gvSvgvwS| Avi Mo fi ‡m‡K‡Û K‡qK nvRvi wK‡jvwgUvi| Avgv‡`i ‡mŠiRMr Avgv‡`i Qvqvc\_‡K wN‡i cvK LvIqvi mgq GB A`…k¨ RvqMv AwZµg K‡i| Avi c…w\_exi c«wZ ‡KwR c`v\_© c«wZ w`b GK nvRviwU ch©š— DB¤ú KYv we‡¶c Ki‡Z cv‡i| GB nv‡i wew¶ß n‡j DB¤ú KYv‡K mivmwi Lyu‡R cvIqv KwVb nIqvi K\_v bq|

GKw`‡K DB¤ú KYvi ‡LvuR Pj‡Q| Ab¨ w`‡K ‡R¨vwZwe©`iv gnvwe‡k¦i fi Rvbvi ‡PóvI K‡i hv‡”Qb| GKwU e¯—y‡K ‡`Lv (ev ‡kvbv bv ‡M‡jI) Gi gnvKl©xq Uvb wKš‘ wb‡R‡K jywK‡q ivL‡Z cv‡i bv| ‡bcPyb M«‡ni Avwe®‹v‡ii K\_vB ai“b bv| ‡R¨vwZwe©`iv ‡Lqvj Ki‡jb, A‡Pbv GKwU e¯—yi gnvKl©xq Uv‡b BD‡ibv‡mi K¶c‡\_ boPo NU‡Q| jyäK we GKwU Aby¾¡j ‡k¦Z evgb b¶Î| D¾¡j b¶Î jyäK‡K ‡K›`« K‡i ‡Nv‡i ‡mwU| GB we jyäK‡KI wKš‘ Gfv‡eB cvIqv ‡M‡Q| Zvi gv‡b, e¯—yi ch©‡e¶Y‡hvM¨ MwZ ‡Lqvj K‡i ‡R¨vwZwe©`iv A‡`Lv e¯—yiI wPÎ AvuK‡Z cv‡ib| (Avwg Av‡MB ‡ejwQ, Kxfv‡e GB c×wZ‡Z wmMœvm-1 e¯—ywU‡K e­¨vK ‡nvj wn‡m‡e Abygvb Kiv n‡qwQj|)

Avgv‡`i Qvqvc‡\_ b¶Îiv Kxfv‡e Pj‡Q ‡m wel‡q MZ GK ev `yB `k‡K Lye wbweofv‡e M‡elYv n‡q‡Q| mvaviYZ b¶Îiv wgwéI‡q ev AvKvkM½v Qvqvc‡\_i ‡K›`«‡K wek ‡KvwU eQ‡ii ‡P‡q ‡ewk mgq wb‡q c«`w¶Y K‡i| Qvqvc‡\_i AvK…wZ wKQyUv PvKwZi g‡Zv| ‡K‡›`«i w`‡K b¶‡Îi NbZ¡Uv GKUy ‡ewk| d‡j ‡mŠiRM‡Zi m~h© I M«‡ni m¤ú‡Ki« g‡Zv c«vq GKB iKg GKwU e¨vcvi Av‡Q GLv‡b| Z‡e ‡mŠiRM‡Z eya I ï‡µi g‡Zv c…w\_ex ‡\_‡KI ‡fZ‡ii w`‡Ki M«n¸‡jv BD‡ibvm ev ‡bcPy‡bi g‡Zv evB‡ii w`‡Ki M«n‡`i ‡P‡q ‡Rv‡i P‡j| Gi KviY n‡jv ‡fZ‡ii w`‡Ki M«n¸‡jv m~‡hi« gnvKl©xq Uvb ‡ewk Abyfe K‡i| Avgiv nqZ Avkv Kie, Qvqvc‡\_i ‡¶‡ÎI e¨vcviwU GgbB n‡e| PvKwZi evB‡ii w`‡Ki b¶Î¸‡jv ‡K‡›`«i w`‡Ki b¶Î‡`i Zyjbvq A‡bK ax‡i ‡Nviv DwPZ|

wKš‘ ch©‡e¶Y ej‡Q wfbœ K\_v| cy‡iv PvKwZ Ry‡oB b¶Î‡`i ‡eM c«vq mgvb| e¨vL¨v wn‡m‡e ejv ‡h‡Z cv‡i, Qvqvc‡\_i fi nqZ ‡K‡›`« cywÄf~Z bq| eis cy‡iv Qvqvc\_Ry‡o mgfv‡e we¯—…Z| Qvqvc‡\_i ‡Pnviv ‡`‡L g‡b nq, fi ‡K‡›`«B cywÄf~Z| Z‡e Av‡jvK¾¡j Ask nqZ c~Y©v½ wPÎ ‡`Lv‡”Q bv| GUv ¯úó ‡h c«Pyi cwigvY AÜKvi ev A`…k¨ e¯—y i‡q‡Q| Gi eo GKwU As‡ki Ae¯’vb PvKwZi evB‡ii w`‡K| Avi GUvB ‡mw`‡Ki b¶‡Îi ‡eM evwo‡q w`‡q‡Q| Avevi PvKwZi D¾¡j Z‡ji evB‡i Lvwj ‡Pv‡L A`…k¨ WvK© g¨vUviI \_vK‡Z cv‡i c«Pyi| GUv n‡j AvKvkM½v XvKv \_v‡K wekvj fvix GK A`…k¨ ejq w`‡q| GB ejq Avš—tQvqvc\_xq ¯’v‡bi A‡bK `~i ch©š— we¯—…Z| Ab¨ Qvqvc‡\_I GKB iKg web¨vm ‡Pv‡L c‡o| wn‡me ej‡Q, (m~‡hi« Zyjbvq) D¾¡jZv ‡`‡L hZUv g‡b nq Qvqvc‡\_i `…k¨gvb Ask M‡o Zvi `k ¸‡Yi ‡ewk AÂj Ry‡o we¯—…Z| me‡P‡q evB‡ii w`‡K AÂ‡j Avevi GB we¯—…wZ cvuP nvRvi ¸Y ch©š—I n‡Z cv‡i|

Qvqvc\_¸‡”Qi g‡a¨ Qvqvc‡\_i PjvP‡ji ‡¶‡ÎI GKB K\_v ejv hvq| cwi®‹vi K\_v: ‡Kv‡bv Qvqvc\_ h‡\_ó ‡e‡M Pj‡j ‡mwU Qvqvc\_ ¸‡”Qi Uvb wQu‡o ‡ewi‡q hv‡e| ¸‡”Qi me Qvqvc\_ GB ‡e‡M Nyi‡j ¸”Q µ‡gB wbt‡kl n‡q Avm‡e| ‡KvgvgÊ‡j Av‡Q K‡qKk Qvqvc\_ wb‡q Mov GKwU Av`k© Qvqvc\_ cyÄ| GwU wb‡q A‡bK ‡ewk M‡elYv n‡q‡Q| GB ¸‡”Q Qvqvc\_‡`i Mo MwZ‡eM GZUv ‡ewk ‡h G‡`i c‡¶ GK Ac‡ii mv‡\_ wg‡jwg‡k \_vKvi K\_v bq| GUv GKgvÎ m¤¢e hw` Qvqvc‡\_ D¾¡j e¯—y‡`i f‡ii ‡P‡q Aš—Z K‡qKk ¸Y fi ‡ewk Dcw¯’Z \_v‡K| ‡Kvgv ¸”Q‡K AwZµg Ki‡Z GKwU mvaviY Qvqvc‡\_i gvÎ c«vq GKk ‡KvwU eQi mg‡qi c«‡qvRb nq| d‡j GZ w`‡b ¸”QwU wQbœwfbœ n‡q hvevi K\_v| ‡mUv wKš‘ N‡Uwb| Dciš‘, ¸‡”Q KvVv‡gv ‡`‡L Lye fv‡jvfv‡e g‡b n‡”Q, GwU gnvK‡li« eÜ‡b Ave× Av‡Q| ‡Kv‡bv GK ai‡bi WvK© g¨vUvi D‡j­L‡hvM¨ cwigv‡Y Dcw¯’Z Av‡Q nqZ| hv Qvqvc‡\_i MwZ‡K c«fvweZ Ki‡Q|

gnvwe‡k¦i AwZ-eo-gvcKvwVi MVb ‡\_‡K A‡`Lv e¯—y m¤ú‡K© AviI GKwU aviYv cvIqv hvq| AwZ-eo-gvcKvwV ej‡Z Avgiv eywS Qvqvc‡\_i K¬v÷vi (¸”Q) I mycviK¬v÷vi‡`i ¸”Qe× nevi c«wµqv| Z…Zxq Aa¨v‡q Avgiv e‡jwQ, Qvqvc\_‡`i we¯—…wZ A‡bKUv ‡dbvi g‡Zv| Qwo‡q cov Avu‡ki g‡Zv| wKsev wekvj k~b¨Zv‡K wN‡i \_vKv Pv`‡ii g‡Zv| weM e¨vs‡qi Gi c‡i hZUyKy mgq AwZevwnZ n‡q‡Q Zv‡Z Ggb ¸”Qe× I ‡dwbj KvVv‡gv M‡o IVvi K\_v bq| Z‡e GUv n‡Z cv‡i hw` ‡Kv‡bv Aby¾¡j e¯—y evowZ gnvKl© mieivn K‡i| Kw¤úDUvi wmgy‡jk‡bi mvnv‡h¨ GLb ch©š— mij ‡Kv‡bv WvK© g¨vUv‡ii aviYv e¨envi K‡i G iKg ‡dwbj ‡Kv‡bv KvVv‡gv ‰Zwi Kiv m¤¢e nqwb| n‡Z cv‡i AviI ‡Kv‡bv RwUj Dcv`vb i‡q‡Q gnvwe‡k¦|

WvK© g¨vUv‡ii inm¨ eyS‡Z weÁvbxiv GLb e¨wZµgx wKQy KYvi ‡LvuR Ki‡Qb| Z‡e WvK© g¨vUvi cwiwPwZ e¯—yi AvKv‡iI \_vK‡Z cv‡i| ‡mUv n‡Z cv‡i M«‡ni AvKv‡ii Aby¾¡j b¶Î| Ggb AÜKvi e¯—y nq‡Zv Avgv‡`i ARv‡š—B Svu‡K Svu‡K Avgv‡`i Pvivcv‡ki gnKv‡k Ny‡i ‡eov‡”Q| m¤cÖwZ ‡R¨vwZwe©`iv `…k¨gvb e¯—y‡`i mv‡\_ gnvKl©xq eÜ‡b Ave× AÜKvi e¯—y‡`i‡K Lyu‡R cvIqvi GKwU Dcvq ‡ei K‡i‡Qb| G ‡KŠk‡j AvBb÷vB‡bi mvwe©K Av‡cw¶KZvi GKwU djvdj e¨envi Kiv nq| bvg gnvKl©xq eµZv (Gravitational lensing)|

Avgiv Rvwb, gnvKl© Av‡jv‡K evuwK‡q w`‡Z cv‡i| AvBb÷vBb e‡jwQ‡jb, `~‡ii b¶‡Îi Av‡jv m~‡hi« KvQ w`‡q Avmvi mgq wKQyUv ‡eu‡K hv‡e| Gi d‡j AvKv‡k b¶ÎwUi AvcvZ Ae¯’vb GKUy cv‡ë hv‡e| Av‡kcv‡k m~‡hi« Dcw¯’wZ I Abycw¯’wZi c«fve j¶ K‡i GB c~e©vfvm hvPvB K‡i ‡`Lv hvq| KvRwU c«\_g K‡ib we«wUk ‡R¨vwZwe©` Av\_©vi GwWsUb| 1919 mv‡j| `vi“Yfv‡e wZwb Avwbb÷vB‡bi e³e¨wU c«gvY K‡ib|

‡jÝI Av‡jvKiwk¥‡K evuwK‡q ‡`q| Gi d‡j Giv Av‡jv‡K ‡K›`«xf~Z K‡i we¤^ (Qwe) ‰Zwi Ki‡Z cv‡i| GKwU fvix e¯—y h‡\_ó c«wZmg n‡j ‡j‡Ýi g‡ZvB AvPiY Ki‡e| ‡K›`«xf~Z Ki‡e `~‡ii Drm ‡\_‡K Avmv Av‡jv‡K| Ggb GKwU NUbv 6.1 wP‡Î ‡`Lv‡bv n‡q‡Q| Drm S ‡\_‡K Av‡jv GKwU ‡MvjKxq e¯—yi Kv‡Q G‡m co‡j e¯—yi gnvKl© Gi cv‡ki Av‡jv‡K evuwK‡q w`‡”Q| d‡j Av‡jvKiwk¥¸‡jv `~‡ii Av‡iKwU we›`y‡Z wM‡q wgwjZ n‡”Q| ‡ewkifMv e¯—yi ‡¶‡ÎB ‡jwÝs ev eµZvi c«fve Lye mvgvb¨| Z‡e wekvj `~i‡Z¡i ‡¶‡Î Av‡jvi Pjvi c‡\_i mvgvb¨UyKy eµZvI D‡j­L‡hvM¨ ‡dvKvm ‰Zwi Ki‡e| e¯—yUv hw` c…w\_ex I `~ieZ©x Dr‡mi gvSLv‡b \_v‡K, Zvn‡j Dr‡mi Lye D¾¡j GKwU Qwe ‡`Lv hv‡e| Avevi wKQy e¨wZµgx cwiw¯’wZ‡Z `…wó‡iLv RvqMvg‡Zv co‡j Av‡jvi D¾¡j e…ËI ‡`Lv ‡h‡Z cv‡i| G‡K ejv nq AvBb÷vBb ejq (Einstein ring)| AviI RwUj e¯—yi ‡¶‡Î ‡jwÝs‡qi d‡j GKwUi e`‡j A‡bK¸‡jv Qwe ‰Zwi n‡e| gnvRvMvwZK gvcKvwV‡Z ‡R¨vwZwe©Ávbxiv gnvKl©xq eµZvi A‡bK¸‡jv D`vniY Lyu‡R ‡c‡q‡Qb| c…w\_ex I `~ieZ©x ‡Kvqvmv‡ii c«vq wbLyuZ Ae¯’v‡b ‡Kvqvmv‡ii A‡bK¸‡jv Qwe ‰Zwi nq| wKQy ‡¶‡Î ‡`Lv hvq e…ËPvc| wKQy‡¶‡Î Avevi ‡Kvqvmv‡ii cy‡iv e…ËI ‡`Lv hvq|

wPÎ 6.1

gnvKl©xq ‡jÝ|

`~ieZ©x Drm S ‡\_‡K Avmv Av‡jv fvix e¯—yi c«fv‡e ‡eu‡K hvq| AbyK~j ‡¶‡Î GwU Av‡jv‡K ‡K›`«xf~Z K‡i| ‡dvKvm we›`y‡Z \_vKv ch©‡e¶K e¯—yi Pvicv‡k Av‡jvi GKwU ejq ‡`L‡Z cv‡eb|

A`…k¨ M«n I Aby¾¡j evgb b¶Î LyuR‡Z wM‡q ‡R¨vwZwe©`iv Ggb eµZvi mÜvb K‡ib| e¯—yUv c…w\_ex I `~‡ii ‡Kv‡bv b¶‡Îi gv‡S \_vK‡j eµZv ‡mB Lei e‡j ‡`‡e| `…wó‡iLv ‡\_‡K A‡`Lv e¯—ywUi bovPovi Kvi‡Y b¶‡Îi D¾¡jZvq `…k¨gvb DVv-bvgv ‡Pv‡L co‡e| e¯—yUv wb‡R A`…k¨ n‡jI ‡jwÝs‡qi gva¨‡g Gi c«fve ‡evSv hv‡e| GB ‡KŠkj Kv‡R jvwM‡q wKQy weÁvbx AvKvkM½v Qvqvc‡\_i n¨v‡jv‡Z (halo) A`…k¨ e¯—yi ‡LvuR Ki‡Qb| Aek¨ `~ieZ©x b¶‡Îi mv‡\_ Ae¯’vb GKB ‡iLvq bv nevi m¤¢vebv Lye Kg n‡jI A`…k¨ e¯—yi msL¨v ‡ewk n‡j gnvKl©xq eµZv ‡`Lv hv‡eB| 1993 mv‡ji K\_v| A‡÷«wjqv I hy³iv‡ó«i GKwU `j wbD mvD\_ Iqvj‡mi gvD›U ‡¯¿vg‡jv ch©‡e¶Y‡K›`« ‡\_‡K jvR© g¨v‡RjvwbK K¬vDW Qvqvc‡\_i b¶Î‡`i ‡`LwQ‡jb| gnvKl©xq eµZvi c«\_g mwZ¨Kvi wb`k©b ZvuivB Lyu‡R cvb| GUv wQj Avgv‡`i Qvqvc‡\_i n¨v‡jv‡Z \_vKv GKwU evgb b¶‡Îi ‡jwÝs|

e­¨vK ‡nvjivI gnvKl©xq ‡jÝ wn‡m‡e KvR K‡i| Qvqvc‡\_i evB‡ii ‡eZvi Drm e¨envi K‡i Ggb e­¨vK ‡nvj‡K e¨vcKfv‡e ‡LvuRv n‡q‡Q| (Av‡jvK Zi‡½i g‡Zv GKBfv‡e ‡eZvi Zi½I ‡eu‡K hvq| ) Aek¨ m¤¢ve¨ e¯—y cvIqv ‡M‡Q Lye KgB| GUv ‡\_‡K g‡b n‡”Q, bv¶wÎK ev AwZ-fvix e­¨vK ‡nvjiv nqZ WvK© g¨vUv‡ii Rb¨ Lye ‡ewk `vqx bq|

Z‡e me ‡jwÝs‡qi Rwi‡c me e­¨vK ‡nvj wKš‘ ‡`LvI hv‡e bv| Avevi GUvI m¤¢e ‡h weM e¨vs cieZ©x Pig Ae¯’vq AvYyex¶wYK (microscopic) e­¨vK ‡nv‡ji Rb¥ n‡q \_vK‡e| G‡`i AvKvi n‡e cigvYyi wbDwK¬qv‡mi ‡P‡q ‡QvU| G‡¶‡Î G‡`i fi n‡e GKwU mvaviY M«nvYyi f‡ii mgvb| Gfv‡eI c«Pyi cwigvY fi A`…k¨ \_vK‡Z cv‡i| GB fi Qwo‡qI \_vK‡e cy‡iv gnvwe‡k¦| ïb‡Z AevK jvM‡jI GB A™¢yZ e¯—y¸‡jvi f‡iiI GKwU wbw`©ó mxgv ‡ei Kiv m¤¢e| ‡KŠkjUvi bvg n‡jv nwKs c«fve (Hawking effect)| 7g Aa¨v‡q Avgiv GUv wb‡q we¯—vwiZ Rvbe| ms‡¶‡c ejv hvq, AvYyex¶wYK e­¨vK ‡nvjiv we‡ùvwiZ n‡q GK SvuK ‰e`¨ywZK PvR©M«¯’ KYv ‰Zwi Ki‡Z cv‡i| GB we‡ùviY N‡U GKwU wbw`©ó mg‡qi c‡i| GUv wbfi« K‡i e­¨vK ‡nv‡ji mvB‡Ri Ici| ‡QvU e­¨vK ‡nvjiv we‡ùvwiZ nq `ª“Z| GKwU M«nvYyi mgvb f‡ii e­¨vK ‡nvj we‡ùvwiZ nq GK nvRvi ‡KvwU eQi cvi n‡j| Zvi gv‡b eZ©gvb mg‡qi KvQvKvwQ mgq| GB we‡ùvi‡Yi GKwU c«fve n‡e nVvr K‡i ‡eZvi Zi‡½i m…wó| ‡eZvi ‡R¨vwZwe©`iv welqwU hvPvBI K‡i ‡`‡L‡Qb| Z‡e Ggb m¤¢ve¨ ‡Kv‡bv m‡¼Z cvIqv hvqwb| wn‡me K‡i ‡`Lv ‡M‡Q, c«wZ 30 eQ‡i c«wZ Nb Av‡jvKel© RvqMvq Ggb we‡ùviY GKwUi ‡ewk NUv m¤¢e bq5| Gi A\_© n‡jv, gnvwe‡k¦i ‡gvU f‡ii Lye mvgvb¨ GKwU AskB AvYyex¶wYK e­¨vK ‡nvj¸‡jv ‡\_‡K cvIqv hv‡e|

Av‡iKwU K\_v n‡jv, gnvwe‡k¦ WvK© g¨vUv‡ii cwigvY wb‡qI G‡KK ‡R¨vwZwe©‡`i G‡KK gZ| gnvwe‡k¦i c«mviY ‡VKv‡Z hZUyKy NbZ¡ c«‡qvRb wVK Zvi ‡P‡q Kg b¨~bZg fi‡K ejv nq m¼U NbZ¡ (critical density)| wn‡me K‡i Gi fi cvIqv ‡M‡Q `…k¨gvb f‡ii c«vq GKk ¸Y| ‡U‡bUy‡b n‡jI G cwigvY f‡ii Aw¯—Z¡ \_vKv m¤¢e| Avkv Ki‡Z n‡e, WvK© g¨vUv‡ii AbymÜvb ‡\_‡K kxN«B mywbw`©ó BwZevPK ev ‡bwZevPK dj cvIqv hv‡e| Avi hvB ‡nvK, gnvwe‡k¦i fwel¨r `vuwo‡q Av‡Q Gi Ici|

Avgv‡`i eZ©gvb Áv‡bi Av‡jv‡K Avgiv ej‡Z cvwi bv gnvwek¦ wPiKvj c«mvwiZ n‡e wK bv| hw` GKmgq GwU m¼ywPZ n‡Z ïi“ K‡i, Z‡e c«kœ `vuov‡e, ‡mUv KLb? GUv ej‡Z n‡j Rvb‡Z n‡e gnvwe‡k¦i fi m¼U f‡ii ‡P‡q KZUv ‡ewk| hw` GUv kZKiv GK fvM ‡ewk nq, Zvn‡j c«vq GK wU«wjqb (ev GK j¶ ‡KvwU) eQi c‡i gnvwek¦ m¼ywPZ n‡Z ïi“ Ki‡e| Avevi hw` ‡mUv kZKiv 10 fvM ‡ewk nq, Zvn‡j m‡¼vPb ïi“ n‡q hv‡e GLb ‡\_‡K 10 nvRvi ‡KvwU eQi c‡iB6|

Z‡e ‡Kv‡bv ‡Kv‡bv ZvwË¡K Avevi g‡b K‡ib, ïay wn‡me-wb‡Kk K‡iB gnvwe‡k¦i fi ‡ei K‡i ‡djv m¤¢e| Zv‡`i g‡Z, Kó K‡i c«Z¨¶ ch©‡e¶‡Yi ‡Kv‡bv c«‡qvRb ‡bB| wbQK hyw³i ¶gZv e¨envi K‡iB ‡h gvbyl gnvRvMwZK ÁvbI AvniY K‡i ‡dj‡Z cv‡i Ggb wek¦vm wM«K `vk©wbK‡`iI wQj| AvaywbK hy‡MI wKQy Km‡gvjwR÷ gnvwe‡k¦i fi‡K MwY‡Zi Q‡K ‡P‡q‡Qb ‡eu‡a ‡dj‡Z ‡P‡q‡Qb| Zv‡`i g‡Z, Mfxi ‡Kv‡bv bxwZgvjv gnvwe‡k¦i f‡ii GKwU wbw`©ó gvb mieivn Ki‡e| G‡`i g‡a¨ me‡P‡q ZvK ‡j‡M hvq ‡mB wm‡÷g¸‡jv ‡`‡L, ‡h¸‡jv w`‡q gnvwe‡k¦i KYvi msL¨vi mwVK cwigvY mvswL¨K m~Î w`‡q ‡ei Kiv hvq|

ev¯—eZvi mv‡\_ m¤úK©nxb Ggb wPš—v¸‡jv ‡`L‡Z-ïb‡Z `vi“Y n‡jI ‡ewkifvM weÁvbxivB G¸‡jv cQ›` K‡ib bv| Z‡e mv¤cÖwZK mg‡q Av‡iKwU ‡Rviv‡jv ZË¡ GKUy Rbwc«qZv ‡c‡q‡Q| GwU gnvwe‡k¦i fi m¤ú‡K© GKwU wbw`©ó c~e©vfvm w`‡Z cvi‡Q| ZË¡wU n‡jv Z…Zxq Aa¨v‡q Av‡jvwPZ ùxwZ ZË¡|

ùxwZ Z‡Ë¡i GKwU c~e©vfvm n‡jv gnvwe‡k¦ Dcw¯’Z e¯—yi cwigvY wb‡q| aiv hvK, gnvwe‡k¦i m~Pbv N‡U‡Q m¼U fi Nb‡Z¡i ‡P‡q A‡bK ‡ewk ev A‡bK Kg gvb wb‡q| ùxwZ hyM ïi“ n‡j Nb‡Z¡i Avg~j cwieZ©b N‡U hvq| Z‡Ë¡i fvl¨ g‡Z, NbZ¡ m¼U Nb‡Z¡i gv‡bi Lye Kv‡Q P‡j Av‡m| gnvwek¦ hZ ‡ewk mgq a‡i ùxZ n‡Z \_v‡K, NbZ¡ ZZB m¼U gv‡bi KvQvKvwQ n‡Z \_v‡K| ZË¡wUi Av`k© bgybv Abymv‡i, ùxwZ hy‡Mi ‡gqv` wQj Lye mvgvb¨| ZvB, A‡jŠwKK wKQy bv N‡U \_vK‡j c«v\_wgK Ae¯’vq gnvwe‡k¦i NbZ¡ m¼U Nb‡Z¡i wVK mgvb nIqvi K\_v bq| mvgvb¨ Kg-‡ewk n‡eB|

Z‡e ùxwZi mg‡q Nb‡Z¡i gvb m¼U gv‡bi w`‡K ‡h‡Z \_v‡K m~PKxq nv‡i7| d‡j Nb‡Z¡i P~W়vš— gvb m¼U gv‡bi ‡P‡q GKUy ‡ewk n‡Z cv‡i| ùxwZ hyM hw` ‡m‡K‡Ûi Lye mvgvb¨ GK fMœvsk mgq cwigvYI wU‡K \_v‡K ZeyI GUvB nIqvi K\_v| GLv‡b m~PKxq ej‡Z ‡evSv‡bv n‡”Q, ùxwZi c«vq c«wZ GKK evowZ mg‡qi R‡b¨ weM e¨vs I gnvwe‡k¦i m‡¼vPb ch©v‡qi g‡a¨ mgq wØ¸Y n‡e| d‡j GK k GKK ùxwZ m‡¼vP‡b 10 nvRvi ‡KvwU eQi ‡`wi n‡e| Avevi GK k GKwU GKK ùxwZi R‡b¨ m‡¼vPb ïi“ n‡e 20 nvRvi ‡KvwU eQi c‡i| Ges GK k `k GKK ùxwZi R‡b¨ m‡¼vPb ïi“ n‡e GK j¶ ‡KvwU eQi c‡i|

ùxwZ hyM KZ¶Y ¯’vqx n‡qwQj? ‡KD ‡mUv Rv‡b bv| Z‡e ‡hme gnvRvMwZK avuavi K\_v Avwg e‡jwQ, ‡m¸‡jv‡K mwVKfv‡e e¨vL¨v Ki‡Z n‡j ùxwZi mgq b¨~bZg K‡qK GKK (c«vq GK k, hw`I gvbwU Gw`K-‡mw`K n‡Z cv‡i) n‡ZB nq| Z‡e ‡Kv‡bv DaŸ© mxgv ‡bB| ai“b, KvKZvjxqfv‡e Ggb N‡U‡Q ‡h Avgv‡`i eZ©gvb ch©‡e¶Y‡K e¨vL¨v Kivi R‡b¨ ùxwZi ‡h b¨~bZg GKK `iKvi wVK ZZUvB n‡qwQj| ‡m‡¶‡ÎI ùxwZi c‡iI NbZ¡ m¼U f‡ii ‡P‡q A‡bK ‡ewk (ev Kg) n‡e| G‡¶‡Î fwel¨r ch©‡e¶Y ‡\_‡K m‡¼vPb hyM ‡ei Ki‡Z cvivi K\_v| A\_ev m‡¼vPb bv n‡q \_vKvi K\_v \_vK‡j ‡mUvI ‡evSv hv‡e| Z‡e ùxwZ b¨~bZg mg‡qi ‡P‡q AviI A‡bK ‡ewk mgq a‡i Pjvi m¤¢vebvB A‡bK ‡ewk| Gi d‡j Nb‡Z¡i gvb n‡e m¼U gv‡bi Lye KvQvKvwQ| Zvi gv‡b, gnvwek¦ m¼ywPZ n‡q \_vK‡jI ‡mUv AviI eû Kvj c‡ii K\_v| gnvwe‡k¦i eZ©gvb eq‡mi ‡P‡qI ‡ewk mgq jvM‡e Zv‡Z| ‡mUvB n‡q \_vK‡j gvbyl KL‡bvB wb‡Ri gnvwe‡k¦i fwel¨ZUvB Rvb‡e bv|

Abyev`‡Ki ‡bvUt

1| µgk `~‡i mi‡Z \_vKv e¯—yi GKwU djvdj n‡jv ‡jvwnZ miY c«fve (red shift)| gnvwe‡k¦i c«mvi‡Yi mv‡\_ mv‡\_ c«vq me M¨vjvw· Avgv‡`i ‡\_‡K `~‡i m‡i hvq| G Kvi‡Y G‡`i ‡\_‡K Avmv `…k¨gvb Av‡jvi Zi½‰`N¨© eo n‡q hvq| `…k¨gvb Av‡jvi g‡a¨ jvj Av‡jvi Zi½‰`N¨© me‡P‡q eo| Avi me‡P‡q Kg bxj Av‡jvi| M¨vjvw·iv `~‡i mi‡Z mi‡Z G‡`i ‡\_‡K Avmv Av‡jv eY©vjxex¶Y h‡š¿ jvj w`‡K P‡j Av‡m| GUviB bvg ‡jvwnZ miY| Avevi D‡ëv w`‡K ‡Kv‡bv M¨vjvw· ev Ab¨ ‡Kv‡bv e¯—y Kv‡Q Avm‡j Zvi Av‡jv P‡j hvq bxj w`‡K| ¯^vfvweKfv‡eB G‡K ejv nq bxj miY (blue shift)|

2| KviY gnvwe‡k¦i c«mvi‡Yi Kvi‡Y eû M¨vjvw· GLbB Av‡jvi KvQvKvwQ, GgbwK ‡ewk ‡e‡MI, µgvMZ Qwo‡q co‡Q| gyw³‡eM Av‡jvi gvÎ GK kZvsk n‡j ‡m c«mviY \_vgvi ‡Kv‡bv KviY ‡bB| gnvK‡li« Uvb‡K AM«vn¨ K‡i wcwQ‡q bv G‡m `~‡i P‡j hvevi R‡b¨ c«‡qvRbxq ‡eM‡KB wKš‘ gyw³‡eM ejv nq|

3| iv‡Zi AvKv‡k nvRvi nvRvi b¶Î ‡`L‡jI Lvwj ‡Pv‡L wKš‘ Avgiv gvÎ 5wU M«n ‡`L‡Z cvB| gv‡b, ‡mŠiRM‡Zi me¸‡jv M«nB wKš‘ Lvwj ‡Pv‡L ‡`Lv m¤¢e nq bv| g‡b n‡Z cv‡i, ‡Uwj‡¯‹vc w`‡qI A‡bK M«n ‡`L‡Z cvB| Avm‡j ‡Uwj‡¯‹vc w`‡qI b¶Î‡`i Zyjbvq M«n ‡Xi Kg ‡`Lv hvq| AvKv‡i ‡QvU nIqvi Kvi‡Y I wbR¯^ Av‡jv bv \_vKvq `~‡ii M«n‡`i‡K ‡Uwj‡¯‹v‡c ‡c‡Z eû KvVLo ‡cvov‡Z nq| 2020 mv‡ji 1 A‡±vei ch©š— gvÎ 4,354 wU ewnM«©n Avwe®‹…Z n‡q‡Q| ‡hLv‡b b¶‡Îi Ae¯’vb D‡j­L Kiv wewfbœ ZvwjKv‡ZB j¶ j¶ b¶‡Îi bvg Av‡Q|

4| B‡jKU«‡bi c«K…Z fi 9.109 × 10^(-31) ‡KwR| gv‡b `kwg‡Ki ci 30wU k~b¨ w`‡q 9109 wjL‡j ‡h msL¨vwU n‡e|

5| Nb wgUvi ‡hgb e¯—y ev ¯’v‡bi AvqZb cwigv‡c e¨eüZ n‡Z cv‡i, ‡Zgwb Nb Av‡jvKel© GKK w`‡qI ¯’v‡bi AvqZb cwigvc Kiv hvq| Av‡jv GK eQ‡i hZUyKy hvq ‡mUv n‡jv GK Av‡jvKel©| Zvi gv‡b Av‡jvKel© mg‡qi GKK bq, eis `~i‡Z¡i GKK| Gevi Nb‡Ki g‡Zv GKwU K‡¶i K\_v wPš—v Ki“b| Gevi GB K‡¶i ‰`N¨©‡K GK Av‡jvKel© fveyb| Zvn‡j GB K¶wUi AvqZbB n‡e GK Nb Av‡jvKel©|

6| mv¤cÖwZK ch©‡e¶Y ej‡Q, gnvwek¦ Avevi ¸wU‡q hv‡e ‡m m¤¢vebv Lye Kg| Z‡e ¸wU‡q hv‡eB bv ‡mUv ejv hv‡”Q bv|

7| Avgiv MvwYwZK I R¨vwgwZK nv‡ii mv‡\_ cwiPwZ| m~PKxq nvi R¨vwgwZK nv‡iiB GKwU iƒc| MvwYwZK nvi ej‡Z ‡evSvq wbw`©ó mgq cici wbw`©ó cwigvY e…w× cvIqv| R¨vwgwZK nvi gv‡b c«wZ evi evovi ci ‡h gvb `vuov‡e Zvi wfwË‡Z evov| Avi m~PKxq nviI R¨vwgwZK nvi| Z‡e G‡¶‡Î wbw`©ó mg‡qi cic‡ii e`‡j c«wZ gyn~‡Z© e…w× N‡U| ‡hgb e¨vK‡Uwiqvi e…w×| AviI Rvb‡Z ‡`Lyb- statmania.info|

mßg Aa¨vq

wPiKvj GKwU `xN© mgq

Amxg wb‡q GKwU ¸i“Z¡c~Y© welq n‡jv, GwU ïayB GKwU eo msL¨v bq| ‰ewkó¨MZfv‡e c«KvÊiKg I AKíbxqfv‡e eo wKQyi ‡P‡q Amxg G‡Kev‡iB Avjv`v| ai“b, gnvwek¦ wPiKvj a‡i c«mvwiZ n‡”Q, hvi ‡bB ‡Kv‡bv ‡kl| wPiKvj wU‡K \_vKvi A\_© n‡e Gi Avqy n‡e Amxg| Ggb ‡¶‡Î ‡h-‡Kv‡bv ‡fŠZ c«wµqv (physical process) ‡Kv‡bv bv ‡Kv‡bv mgq NU‡eB| PvB Zv hZB axiMwZi wKsev Am¤¢ve¨ ‡nvK bv ‡Kb| ‡hgwbfv‡e GKwU evbi Abš—Kvj a‡i G‡jvcv\_vwo wK‡evW© Pvc‡Z \_vK‡j GKmgq bv GKmgq DBwjqvg ‡k·wcqv‡ii eB¸‡jv ‡jLv n‡q hv‡eB|

gnvKl© Zi½ wbM©g‡bi NUbv ‡\_‡K fvj GKwU D`vniY cvIqv hvq| GUv wb‡q Avgiv cÂg Aa¨v‡q K\_v e‡jwQ| ïay c«KvÊ eo ‡Kv‡bv c«wµqvi ‡¶‡ÎB gnvKl©xq wewKi‡Yi gva¨‡g kw³ ¶q ‡\_‡K `…k¨gvb ‡Kv‡bv cwieZ©b NU‡e| c…w\_ex m~‡hi« Pviw`‡K ‡Nvivi d‡j Zi½ wbM©Z nq c«vq GK wgwjIqvU| c…w\_exi MwZi Ici Gi c«fve ¶y`«v`wc¶y`« (infinitesimal)| wKš‘ GZUyKy kw³i ¶qI wU«wjqb wU«wjqb1 eQi a‡i Pj‡Z \_vK‡j GKmgq c…w\_ex mwc©j c\_ ‡e‡q m~‡h© wM‡q av°v Lv‡e| n¨vu, Zvi Av‡MB m~h© c…w\_ex‡K wM‡j ‡L‡q ‡djvi m¤¢vebvB ‡ewk| wKš‘ K\_v n‡jv, ‡h mgqKvjUv gvby‡li mg‡qi wn‡m‡e Lye bMY¨ wKš‘ Aí Aí K‡i n‡jI AweiZ \_v‡K, ‡mUvB GKmgq c«KU n‡q D‡V ‡fŠZ e¨e¯’vi (physical system) fwel¨r wVK K‡i w`‡Z cv‡i|

GLb ‡\_‡K A‡bK A‡bK mgq c‡ii gnvwe‡k¦i Ae¯’vi K\_v GKUy wPš—v Kwi| AvR ‡\_‡K GK nvRvi ‡KvwU-‡KvwU-‡KvwU (gv‡b 1 ci 24wU k~b¨) eQi c‡ii K\_vB ai“b bv| me b¶Î R¡vjvwb dywi‡q Av‡jvnxb n‡q ‡M‡Q| gnvwek¦Uv GLb AÜKvi| wKš‘ dvuKv bq| wekvj k~b¨Zvi GLv‡b-‡mLv‡b i‡q‡Q Nyiš— K…òMnŸiiv| i‡q‡Q `jQyU wbDU«b b¶Î| Avi i‡q‡Q Kv‡jv evgb (black dwarf)| I! Av‡Q wKQy M«‡ni Ae‡klI| GB mgq GB e¯—y¸‡jv G‡K Ici ‡\_‡K \_vK‡e A‡bK A‡bK `~‡i| gnvwek¦ ZZw`‡b c«mvwiZ n‡q Gi eZ©gvb AvKv‡ii 10 nvRvi wU«wjqb ¸Y n‡q‡Q|

gnvKl© ej ‡Lj‡e GK A™¢yZ ‡Ljv| c«mvigvb gnvwek¦ PvB‡e me¸‡jv e¯—y‡K G‡K Ici ‡\_‡K `~‡i mwi‡q ‡dj‡Z| wKš‘ e¯—y‡`i cvi¯úwiK gnvKl©xq AvKl©Y Zvi c‡\_i KvuUv n‡q `vuov‡e| PvB‡e AviI Kv‡Q Avm‡Z| Gi d‡j wKQy wKQy e¯—y gnvKl©xq eÜ‡b Ave×B \_vK‡e| Gi g‡a¨ i‡q‡Q Qvqvc\_cyÄ I eû eQ‡ii KvVv‡gv weK…wZi c‡iI ‡h Qvqvc\_iv wU‡K \_vK‡e| Z‡e GivI G‡`i Av‡kcv‡ki e¯—y¸‡jv ‡\_‡K `~‡i m‡i hv‡e| gnvwe‡k¦i c«mviY nvi KZ `ª“Z Kg‡e Zvi Ici wbfi« Ki‡e Kv‡Q ‡Vjv I Uvbv GB hy‡×i dj| gnvwe‡k¦ e¯—yi NbZ¡ hZ Kg n‡e, Dc‡iv³ e¯—y¸‡jv ZZ mn‡R Av‡kcv‡ki e¯—y ‡\_‡K Avjv`v n‡q hv‡e| Nyi‡Z \_vK‡e gy³ I ¯^vaxbfv‡e|

gnvKl©xq eÜ‡b Ave× wm‡÷‡gi ‡¶‡Î gnvKl© ax‡i n‡jI Zvi Zxe« Avwac‡Z¨i ewntc«Kvk NUvq| gnvKl© Zi‡½i wbM©gb `ye©j n‡jI NvZ‡Ki g‡Zv µgk wm‡÷‡gi kw³ ‡kl K‡i ‡`q| hvi dj GKwU axi I mwc©j c‡\_i g…Z¨y| Gfv‡e ax‡i ax‡i GK g…Z Zviv Ab¨ g…Z Zviv ev K…òMne‡ii w`‡K AM«mi n‡e| GK mgq Giv wM‡j Lv‡e G‡K Ici‡K| m~‡hi« K¶c\_ aŸsm Ki‡Z gnvKl© Zi‡½i mgq jvM‡e GK nvRvi ‡KvwU-‡KvwU-‡KvwU eQi| m~h© ZZ w`‡b n‡e GKwU Kv‡jv evgb b¶Î| ‡`L‡Z A½v‡ii g‡Zv| ax‡i ax‡i ‡h‡Z \_vK‡e Qvqvc‡\_i ‡K‡›`«i w`‡K| ‡hLv‡b GK c«KvÊ K…òMnei nv K‡i Av‡Q Zv‡K wM‡j Lvevi R‡b¨|

m~‡hi« g…Z¨y Gfv‡eB n‡e GUv wbwðZ K‡i ejvi ‡Kv‡bv my‡hvM ‡bB| mwc©j c‡\_ GwM‡q hvevi mgq Ab¨ b¶‡Îi mv‡\_I Gi ‡`Lv n‡e| A‡bK mgq GwU P‡j Avm‡e ‡Kv‡bv evBbvwi wm‡÷‡gi Kv‡Q| ‡hLv‡b `y‡Uv ZviKv gnvKl©xq eÜ‡b NyicvK Lv‡”Q| Gici N‡U GK gRvi NUbv| hvi bvg gnvKl©xq wb‡¶cY (gravitational slingshot)| `y‡Uv e¯—yi G‡K Ic‡ii Pvicv‡ki N~Y©b Gi mijZvi Rb¨ weL¨vZ| GB welqwUB ‡Kcjvi I wbDUb‡K e¨wZe¨¯— ‡i‡LwQj| ‡h e¨¯—Zv ‡\_‡KB Rb¥ AvaywbK weÁv‡bi| Zvuiv G‡¶‡Î KvR K‡iwQ‡jb m~h© I c…w\_ex e¯—y `ywU wb‡q| GKwU Av`k© cwi‡e‡ki K\_v wPš—v Ki‡j I gnvKl©xq wewKi‡Yi K\_v ev` w`‡j M«nwUi GB MwZ wbqwgZ I ch©ve…Ë| gv‡b wbw`©ó mgq cici MwZ GKB iKg nq| Avcwb hZ mgqB A‡c¶v Ki“b bv ‡Kb, M«n GKBfv‡e K¶c‡\_ Pj‡Z \_v‡K| Z‡e Z…Zxq GKwU e¯—y hy³ n‡jB Ae¯’v Avg~j cv‡ë hvq| ‡mUv GK b¶Î I `yB wKsev wZb b¶Î hvB ‡nvK| MwZ GLb Avi mij I ch©ve…Ë n‡e bv| wZb e¯—yi ga¨Kvi cvi¯úwiK AvKl©Y memgq RwUj Dcv‡q cv‡ë ‡h‡Z \_vK‡e| Gi d‡j GB e¨e¯’vi (system) kw³ Dcv`vb e¯—y¸‡jvi g‡a¨ mgvbfv‡e fvM n‡e bv| GgbwK Zviv GKB iKg e¯—y n‡jI bv| Pj‡Z \_v‡K eis GK RwUj b…Z¨| ‡hLv‡b GKwU e¯—y I mv‡\_ Ab¨ GKwU e¯—yB kw³i c«avb Ask `Lj K‡i| `xN© mg‡qi K\_v wPš—v Ki‡j H e¨e¯’vi AvPiY Awbevh©fv‡e ‰`e2 (random) | mwZ¨ ej‡Z, gnvKl©xq MwZwe`¨vi wZb e¯—yi mgm¨v (three-body problem) wek…•Lj (chaotic) e¨e¯’viI GKwU fvj D`vniY| GgbI n‡Z cv‡i ‡h `ywU e¯—y wg‡j Dcw¯’Z kw³i GZUvB wb‡q ‡d‡j ‡h Z…Zxq e¯—yUv e¨e¯’v ‡\_‡KB wQU‡K c‡o ‡¶cYv‡¯¿i g‡Zv| G Kvi‡YB G c«wµqv‡K e‡j gnvKl©xq wb‡¶cY|

wb‡¶cY c«wµqvi gva¨‡g b¶Î¯—eK ‡\_‡K wQU‡K ‡h‡Z cv‡i b¶Î| GgbwK Qvqvc\_ ‡\_‡KI wQU‡K ‡h‡Z cv‡i| `~i fwel¨‡Z g…Z b¶Î, M«n I K…òMnŸi‡`i eo Ask Gfv‡e Avš—tQvqvc\_xq ¯’v‡b wbw¶ß n‡e| nqZ G NUbvi gva¨‡g mv¶vr n‡e Ab¨ ‡Kv‡bv fvObiZ Qvqvc‡\_i mv‡\_| A\_ev GwU wPiKvj wekvj c«mviYkxj k~b¨Zvi g‡a¨ NyicvK ‡L‡Z \_vK‡e| Z‡e GB c«wµqv NU‡e Lye ax‡i| GUv NU‡Z gnvwe‡k¦i eZ©gvb eq‡mi GK k ‡KvwU ¸Y mgq jvM‡e| Aewkó e¯—y¸‡jv Qvqvc‡\_i ‡K‡›`«i w`‡K hvÎv Ki‡e| wgwjZ n‡q M‡o Zyj‡e wekvj ecyi (gigantic) K…òMnŸi|

cÂg Aa¨v‡q ejv n‡q‡Q, ‡R¨vwZwe©`iv ‡gvUvgywU wbwðZ, eZ©gv‡bB wKQy wKQy Qvqvc‡\_i ‡K‡›`« wekvj wekvj K…òMnŸi Av‡Q| Giv N~b©bkxj M¨vm wM‡j Lv‡”Q| wewbg‡q wegy³ n‡”Q wecyj cwigvY kw³| mgq G‡j Ggb UvjgvUvj NUbvi wkKvi n‡e me Qvqvc\_| GUv Pj‡ZB \_vK‡e hZ¶Y bv K…òMnŸ‡ii cvk¦©eZ©x me e¯—y nq `~‡i wQU‡K hv‡e bqZ K…òMnŸ‡ii ‡c‡U P‡j hv‡e| wQU‡K hvIqv e¯—y Avevi wd‡iI Avm‡Z cv‡i| Avevi µgk nvjKv n‡q Avmv Avš—tbv¶wÎK M¨v‡mi mv‡\_I wg‡k ‡h‡Z cv‡i| dy‡j-‡du‡c IVv K…òMnŸiwU Gevi ‡gvUvgywU wb\_i n‡q \_vK‡e| ïay ‡\_‡K ‡\_‡K `yB-GKwU wew”Qbœ wbDU«b b¶Î wKsev K…òMnŸi G‡m wg‡k hv‡e Gi mv‡\_| Z‡e K…òMnŸ‡ii Rxeb GLv‡bB ‡kl bq| 1974 mv‡j w÷‡db nwKs Avwe®‹vi Ki‡jb K…òMnŸi wVK K…ò bq| Zviv eis GKwU `ye©j Zv‡ci Avfv wewKiY K‡i|

GB nwKs wewKiY wVKfv‡e eyS‡Z n‡j jvM‡e ‡Kvqv›Uvg ZË¡| ZË¡Uv mnR bq| gnvwe‡k¦i ùxwZ ZË¡ wb‡q K\_v ejvi mgq Avwg Gi K\_v Av‡jvPbv K‡iwQ| nqZ g‡b Av‡Q, ‡Kvqv›Uvg Z‡Ë¡i GKwU c«avb e³e¨ n‡jv nvB‡Rbev‡Mi« AwbðqZv bxwZ| bxwZwU ej‡Q, ‡Kvqv›Uvg KYv‡`i me¸‡jv ‰ewk‡ó¨i mymsÁvwqZ gvb \_v‡K bv| ‡hgb ai“b, GKwU wbw`©ó mg‡q GKwU ‡dvUb ev B‡jKU«b KYvi kw³i cwigv‡Yi wbw`©ó ‡Kv‡bv gvb \_vKv m¤¢e bq| mwZ¨ ej‡Z, GKwU AwZcvigvYweK KYv kw³ 'avi' Ki‡Z cv‡i| kZ© n‡jv Lye ¯^í mg‡qi g‡a¨ GB kw³ wdwi‡q w`‡Z n‡e|

Z…Zxq Aa¨v‡qB e‡jwQ, kw³i GB avi Kiv ‡\_‡K wKQy AvM«‡nvÏxcK djvdj cvIqv hvq| Gi g‡a¨ GKwU n‡jv AvcvZ `…wó‡Z k~b¨ ¯’v‡b ¯^ívqy ev fvP©yqvj KYvi Dcw¯’wZ| GUv ‡\_‡K cvIqv hvq GK A™¢yZ aviYv| ‡Kvqv›Uvg f¨vKyqvg| GUv Ggb GK f¨vKyqvg ('dvuKv ¯’vbÕ), ‡hwU dvuKv \_vKvi e`‡j Aw¯’i fvP©yqvj KYvi Dcw¯’wZ‡Z gyLi \_v‡K| GB Kvh©µg mvaviYZ ‡Pv‡L c‡o bv| Z‡e Gi ‡fŠZ c«fve wKš‘ Av‡Q| Ggb GKwU djvdj cvIqv hvq f¨vKyqv‡gi GB Kvh©µg gnvKl©xq ‡¶Î Øviv c«fvweZ n‡j|

fvP©yqvj KYv‡`i GKwU Pig cwi‡ek cvIqv hvq K…òMnŸ‡ii NUbv w`M‡š—i Kv‡Q| Av‡MB e‡jwQ, avi Kiv kw³i mvnv‡h¨ fvP©yqvj KYviv Aí mg‡qi Rb¨ Aw¯—Z¡gvb \_v‡K| GKUy c‡iB kw³UyKy w`‡q w`‡Z nq| KYv‡`i‡KI aŸsm n‡q ‡h‡Z nq| GB mg‡qi g‡a¨ ‡Kv‡bv Kvi‡Y fvP©yqvj KYviv evB‡ii ‡Kv‡bv Drm ‡\_‡K kw³i eo ‡Kv‡bv mieivn ‡c‡j Zv‡`i FY cwi‡kva Kiv mnR n‡q ‡Mj| AZGe, FY cwi‡kv‡ai R‡b¨ Gevi Avi Zv‡`i‡K wejxb n‡q hvevi c«‡qvRb ‡bB| Gevi Giv Kg-‡ewk ¯’vqx Aw¯—Z¡ cv‡e|

nwKs‡qi g‡Z Ggb FY ‡bIqvi NUbvB N‡U e­¨vK ‡nv‡ji Kv‡Q| G‡¶‡Î c«‡qvRbxq kw³ ‡hvMvb ‡`Iqv `vZv n‡jv e­¨vK ‡nv‡ji gnvKl©xq ‡¶Î| KvRwU N‡U Gfv‡e: mvaviYZ fvP©yqvj KYviv ‰Zwi nq ‡Rvovq ‡Rvovq| Avi MwZ \_v‡K wecixZ \_v‡K| NUbv w`M‡š—i wVK evB‡i Ggb GK ‡Rvov bZyb KYvi K\_v wPš—v Ki“b| ai“b, KYv‡`i MwZ Ggb ‡h GKwU KYv NUbv w`Mš— ‡cwi‡q e­¨vK ‡nv‡ji g‡a¨ P‡j ‡Mj| hvIqvi mgq GwU e­¨vK ‡nv‡ji Zxe« gnvKl© ‡\_‡K c«Pyi kw³ jvf Ki‡e| nwKs ‡`L‡jb, GB kw³UyKy w`‡q cy‡iv FYUvB ‡kva K‡i ‡djv hvq| Gi gva¨‡g e­¨vK ‡nv‡ji ‡fZ‡ii I evB‡ii `ywU KYvB ev¯—e KYvq cwiYZ nq| w`M‡š—i evB‡ii wew”Qbœ KYvwUi fwel¨r AwbwðZ| n‡Z cv‡i, GwUI e­¨vK ‡nv‡ji w`‡K P‡j Avm‡e| Avevi D”P ‡e‡M e­¨vK ‡nvj ‡\_‡K D‡ëv w`‡KI ‡h‡Z cv‡i| cvwj‡q ‡h‡Z cv‡i e­¨vK ‡nv‡ji wÎmxgvbv ‡\_‡K| AZGe nwKs ej‡Qb, e­¨vK ‡nvj ‡\_‡K `~‡ii w`‡K Ggb SvuK KYv Aweivg cvjv‡Z \_vK‡e| G NUbviB bvg nwKs wewKiY|

AvYyex¶wYK e­¨vK ‡nv‡ji R‡b¨B nwKs wewKiY me‡P‡q kw³kvjx n‡e| GKwU fvP©yqvj B‡jKU«‡bi K\_v wPš—v Ki“b| mvaviY Ae¯’vq GwU FY cwi‡kva Kivi Av‡M m‡e©v”P 10-11 ‡mw›UwgUvi c\_ ‡h‡Z cv‡i| Zvi gv‡b ïay Gi ‡P‡q ‡QvU gvÎvi (c«vq cigvYyi ‡K‡›`«i mgvb) e­¨vK ‡nvjB ïay mwZ¨Kvi A‡\_© B‡jKU«‡bi ‡dvqviv ‰Zwi Ki‡Z cvi‡e| e­¨vK ‡nvj Gi ‡P‡q eo n‡j ‡ewkifvM fvP©yqvj B‡jKU«bB FY cwi‡kv‡ai Av‡M NUbv w`Mš— ‡\_‡K ‡ei n‡Z cvi‡e bv|

GKwU fvP©yqvj KYv KZUv c\_ hv‡e ‡mUv wbfi« K‡i ‡mwU KZ mgq evuP‡e Zvi Ici| GUv Avevi wbfi« K‡i aviK…Z kw³i cwigv‡Yi Ici| nvB‡Rbev‡Mi« AwbðqZv bxwZi gva¨‡g| FY hZ ‡ewk n‡e, KYvi Avqy n‡e ZZ Kg| kw³ avi Kivi eo GKwU Ask n‡jv KYvi wbðj fikw³| B‡jKU«‡bi ‡¶‡Î F‡Yi cwigvY Aš—Z B‡jKU«‡bi wbðj f‡ii mgvb n‡Z n‡e| ‡c«vUb ev Ggb AviI ‡ewk wbðj f‡ii KYvi ‡¶‡Î F‡Yi cwigvY n‡e AviI eo| ZvB ‡gqv`KvjI n‡e Kg| Zvi gv‡b AwZµvš—I c\_I n‡e Aí| Zvn‡j fveyb nwKs wewKi‡Yi gva¨‡g ‡c«vUb ‰Zwi Ki‡Z n‡j ‡Kgb cwi‡ek jvM‡e| jvM‡e Ggb GK e­¨vK ‡nvj, hv cigvYyi ‡K‡›`«i gvÎvi ‡P‡qI ‡QvU| Ab¨ w`‡K wbDwU«‡bv ev Ggb AviI Kg wbðj f‡ii KYv ‰Zwi n‡e Ggb e­¨vK ‡nv‡j hvi gvÎv cigvYyi ‡K‡›`«i gvÎvi ‡P‡q eo| ‡dvU‡bi wbðj fi k~b¨| GUv ‡h-‡Kv‡bv AvKv‡ii e­¨vK ‡nvjB ‰Zwi Ki‡Z cvi‡e| GgbwK gvÎ GK ‡mŠi f‡ii e­¨vK ‡nvjI nwKs c«ev‡ni gva¨‡g ‡dvUb, GgbwK m¤¢eZ wbDwU«‡bvI wbM©Z Ki‡e| Z‡e ‡m‡¶‡Î c«ev‡ni Zxe«Zv n‡e Lye `ye©j|

GLv‡b '`ye©j' K\_vUvq GZUyKyI AZ¨yw³ ‡bB| nwKs ‡`L‡jb, e­¨vK ‡nvj w`‡q m…ó kw³i eY©vwj GKwU DËß e¯—y ‡\_‡K wbM©Z wewKi‡Yi g‡ZvB nq| AZGe, nwKs c«fv‡ei Zxe«Zv cwigvc Kivi GKwU Dcvq n‡jv ZvcgvÎv| cigvYyi ‡K‡›`«i AvKv‡ii (e¨vm 10-13 ‡mw›UwgUvi) GKwU e­¨vK ‡nv‡ji ZvcgvÎv A‡bK A‡bK ‡ewk| c«vq GK nvRvi wWwM«| Ab¨ w`‡K ‡mŠi f‡ii GKwU e­¨vK ‡nv‡ji e¨vm gvÎ GK wK‡jvwgUvi| Avi ZvcgvÎv cig k~b¨3 ZvcgvÎvi 10 j¶ fv‡Mi GK fv‡MiI Kg| nwKs wewKi‡Yi gva¨‡g cy‡iv e¯—ywU GK Iqv‡Ui GK nvRvi ‡KvwU-‡KvwU-‡KvwU fv‡MiI Kg cwigvY wewKiY D˜MxiY Ki‡e|

nwKs c«fv‡ei A‡bK A™¢yZ ‰ewkó¨ Av‡Q| Gi GKwU n‡jv e­¨vK ‡nv‡ji fi hZ Kg Kg nq, wewKi‡Yi ZvcgvÎv nq ZZ ‡ewk| Zvi gv‡b ‡QvU e­¨vK ‡nvjiv ‡ewk DËß nq| wewKi‡Yi gva¨‡g e­¨vK ‡nv‡ji kw³ Kg‡Z \_v‡K| d‡j K‡g fiI| Avi GwU µgk ‡QvU n‡q Av‡m| d‡j GwU AviI DËß nq| d‡j wewKiY nq AviI ‡ewk| Zvi gv‡b ‡QvU nq AviI `ª“Z MwZ‡Z| ¯^fveMZfv‡eB c«wµqvwU Aw¯’wZkxj wKš‘ kw³kvjx| e­¨vK ‡nvj µgkB Av‡Mi ‡P‡q `ª“Z kw³ wbM©Z Ki‡Z \_v‡K I AvKv‡i ‡QvU n‡Z \_v‡K|

nwKs c«fve ej‡Q, wewKiY w`‡Z w`‡Z ‡kl ch©š— me e­¨vK ‡nvj wbt‡kl n‡q hv‡e| ‡k‡li gyn~Z©¸‡jv n‡e ‡`Lvi g‡Zv| g‡b n‡e ‡hb GK cvigvYweK ‡evgvi we‡ùviY NU‡Q| Zxe« Zvc kw³i GK ¯^í¯’vqx SjK| Zvici? Zvici Avi wKQyB bv| ZË¡ Aš—Z ‡m K\_vB ej‡Q| Z‡e wKQy wKQy c`v\_©we` e­¨vK ‡nvj‡K ‡g‡b wb‡Z cvi‡Qb bv| ‡Kb GKwU Ro c`v\_© ¸wU‡q wM‡q e­¨vK ‡nvj n‡e? ZvI Avevi c‡i ïay Zvc wewKiY ‡i‡L wb‡R wgwj‡q hv‡e k~‡b¨!

Zv‡`i D‡Ø‡Mi KviY n‡jv, `ywU GK`g Avjv`v e¯—y AweKj GKB iKg Zvc wewKi‡Yi Rb¥ w`‡Z cv‡i| d‡j g~j e­¨vK ‡nv‡ji Av‡Mi ‡Kv‡bv Z\_¨ msiw¶Z \_vK‡Q bv| Ggb DavI nIqvi c«wµqv me ai‡bi msi¶YkxjZv bxwZi wec‡¶| Z‡e weKí GKwU e¨vL¨vI Av‡Q| nqZ DavI nIqvi Av‡M e­¨vK ‡nvj GKwU m~² aŸsmve‡kl ‡i‡L hvq| hv‡Z ‡Kv‡bvfv‡e wecyj cwigvY Z\_¨ iw¶Z \_v‡K| ‡m hvB ‡nvK, e­¨vK ‡nv‡ji f‡ii wekvj GKwU Ask Zvc I Av‡jv AvKv‡i wewKwiZ n‡q hv‡”QB|

nwKs c«wµqv AfvebxqiKg ax‡i KvR K‡i| GK ‡mŠi f‡ii GKwU e­¨vK ‡nvjB wbt‡kl n‡Z 1066 eQi mgq ‡b‡e| Ab¨ w`‡K GKwU mycvig¨vwmf ev AwZfvix e­¨vK ‡nv‡ji mgq jvM‡e 1093 eQi| ZvI Avevi c«wµqvwU ïi“B n‡e bv hZ¶Y bv gnvwe‡k¦i cUf~wg ZvcgvÎv ‡mB e­¨vK ‡nv‡ji ZvcgvÎvi bx‡P bv bv‡g| Ab¨\_vq Av‡kcv‡ki AÂj ‡\_‡K e­¨vK ‡nv‡ji w`‡K c«evwnZ Zv‡ci Zxe«Zv e­¨vK ‡nvj ‡\_‡K nwKs c«fv‡ei gva¨‡g wbM©Z Zv‡ci ‡P‡q ‡ewk n‡e| weM e¨vs‡qi aŸsmve‡kl ‡\_‡K c«vß gnvRvMwZK cUf~wg Zvc wewKi‡Yi eZ©gvb ZvcgvÎv cig k~‡b¨i wZb wWwM« Ic‡i| ‡mŠi f‡ii e­¨vK ‡nv‡ji ‡¶‡Î Zvc wewKi‡Yi wbtmiY I AvMg‡bi fvimvg¨ (mgvb-mgvb) nIqvi ZvcgvÎv K‡g Avm‡Z mgq jvM‡e 1022 eQi| nwKs wewKiY Ggb wKQy bq hv Avgiv wKQy¶Y e‡m ‡\_‡KB ‡`‡L ‡dj‡Z cvie|

Z‡e wPiKvj GKwU `xN© mgq| ZvB wPiKvj A‡c¶v Ki‡Z cvi‡j m¤¢eZ me e­¨vK ‡nvj, GgbwK AwZfvix‡`i‡KI DavI n‡Z ‡`Lv hv‡e| wPiš—b gnvRvMwZK Agvwbkvi Av‡jvi ¶Y¯’vqx SjK ‡`wL‡q e­¨vK ‡nvj Zvi g…Z¨y-‡e`bv c«Kvk Ki‡e| ‡KvwU ‡KvwU m~‡hi« mgvb ‡ZR¯^x e¯—yUvi we`vq NÈv!

evwK \_vKj Zvn‡j Kx?

me c`v\_© e­¨vK ‡nv‡j cwZZ nq bv| wbDU«b b¶Î I K…òevgb wb‡qI Avgv‡`i‡K fve‡Z n‡e| GQvovI Av‡Q wbtm½ M«n, hviv GKvKx Avš—tQvqvc\_xq ¯’v‡b Ny‡i ‡eovq| ïay wK ZvB? AviI Av‡Q M¨vm I a~wjKYvi nvjKv AveiY| ‡h¸‡jv KL‡bvI mg‡eZ n‡q b¶‡Î cwiYZ n‡Z cv‡iwb| AviI Av‡Q M«nvYy, a~g‡KZy, DévwcÊ I wewfbœ ‡mŠie¨e¯’vi cyi‡bv cv\_iLÊ| Gme e¯—yiv wK wPiKvj wU‡K \_vK‡e?

GLv‡b G‡m Avgiv ZvwË¡K mgm¨vq c‡o hvB| Avgv‡`i‡K Rvb‡Z n‡e mvaviY c`v\_©, gv‡b Avgiv gvbyliv Ges c…w\_ex ‡hme e¯—y w`‡q Mov Zv wK G‡Kev‡i w¯’wZkxj? fwel¨‡Z Kx NU‡e Zvi P~ovš— djvdj wbfi« Ki‡Q ‡Kvqv›Uvg ‡gKvwb‡·i Ici| ‡Kvqv›Uvg c«wµqv mvaviYZ cvigvYweK I AwZcvigvYweK e¨e¯’vi mv‡\_ m¤úwK©Z| Z‡e ‡Kvqv›Uvg c`v\_©we`¨vi bxwZ mewKQyi ‡¶‡ÎB c«‡hvR¨ nevi K\_v| c«‡hvR¨ nevi K\_v AvYyex¶wYK e¯—yi ‡¶‡ÎI| eo e¯—y‡`i ‡¶‡Î ‡Kvqv›Uvg djvdj AwZgvÎvq ¶y`«| Z‡e `xN© mg‡q ‡mUvI eo cwieZ©b NUv‡Z m¶g|

‡Kvqv›Uvg c`v\_©we`¨vi c«avb ‰ewkó¨ n‡jv AwbðqZv I m¤¢ebv| ‡Kvqv›Uvg RM‡Z wKQyB wbwðZ bq| Av‡Q ïay m¤¢vebv| Zvi gv‡b ‡Kv‡bv GKwU NUbv hw` m¤¢e n‡q \_v‡K, Zvn‡j h‡\_ó cwigvY mgq ‡c‡j GwU NU‡eB| Zvi m¤¢vebv hZB Kg ‡nvK| ‡ZRw¯ŒqZvi ‡¶‡Î Avgiv GB wbqgwUi c«wZdjb ‡`wL| BD‡iwbqvg-238 Gi wbDwK¬qvm c«vq m¤ú~Y© w¯’wZkxj| Z‡e GwU ‡\_‡KI GKwU Avjdv KYv wbw¶ß n‡q ‡\_vwiqvg ‰Zwi n‡q hvevi ‡QvU GKwU m¤¢vebv ‡\_‡KB hv‡”Q| AviI mwVK K‡i ej‡j, c«wZ GKK mg‡q GKwU wbw`©ó BD‡iwbqvg wbDwK¬qv‡mi ‡f‡O hvevi GKwU Lye ‡QvU m¤¢vebv Av‡Q| GUv NU‡Z M‡o mv‡o Pvi‡kv ‡KvwU eQi mgq jv‡M| Z‡e c`v\_©we`¨vi m~Î c«wZ GKK mg‡qB GKwU wbw`©ó m¤¢vebv Pvq| d‡j ‡h-‡Kv‡bv BD‡iwbqv‡gi ‡K›`«B GKmgq bv GKmgq fvO‡eB|

GKevi fveyb ‡Zv, Avjdv KYvi ‡ZRw¯Œq ¶q ‡Kb N‡U? KviY BD‡iwbqvg cigvYyi wbDwK¬qv‡m \_vKv ‡c«vUb I wbDU«‡bi Ae¯’v‡b GKUyLvwb AwbðqZv Av‡Q| d‡j memgq ¶y`« n‡jI GK ¸”Q KYv Aí mg‡qi Rb¨ wbDwK¬qv‡mi evB‡i Ae¯’vb Kivi GKwU m¤¢vebv Av‡Q| G Kvi‡Y wbDwK¬qvm ‡\_‡K Zviv `ª“Z `~‡i avweZ nq| GKBfv‡e KwVb c`v‡\_i« cigvYyi Ae¯’v‡bi e¨vcv‡iI GKwU AviI ‡QvU wKš‘ Ak~b¨ AwbðqZv Av‡Q| ‡hgb nxivi g‡a¨ GKwU Kve©b cigvYyi K\_v fveyb| GwU ùwU‡Ki j¨vwU‡mi g‡a¨ LyeB mymsÁvwqZ RvqMvq Ae¯’vb K‡i| `~i fwel¨‡Z gnvwe‡k¦i c«Z¨vwkZ ZvcgvÎv k~‡b¨i Kv‡Q ‡cŠuQ‡jB GB Ae¯’vb Aw¯’wZkxj nIqvi K\_v| wKš‘ cy‡ivcywi bq| cigvYywUi Ae¯’v‡b memgqB GKwU ¶y`« AwbðqZv Av‡Q| Gi gv‡b n‡jv, j¨vwUm ‡\_‡K cigvYywU ‡ewi‡q wM‡q Ab¨ ‡Kv\_vI P‡j hvevi GKwU ¶y`« m¤¢vebv Av‡Q| Ggb c«¯’vb c«wµqvi Kvi‡Y ‡Kv‡bv c`v\_©B, GgbwK nxivi g‡Zv KwVb c`v\_©I, mwZ¨Kvi A‡\_© KwVb bq| eis, hv‡K ‡`L‡Z KwVb g‡b nq ‡mwU Avm‡j A‡bK ‡ewk AvVv‡jv GKwU Zij c`v\_©| Ges A‡bK ‡ewk mgq ‡c‡j GwUI Zi‡ji g‡Zv c«evwnZ n‡Z cvi‡e| KviY n‡jv ‡Kvqv›Uvg ‡gKvwb‡·i c«fve| ZvwË¡K c`v\_©we` wd«g¨vb WvBmb wn‡me K‡i ‡`‡L‡Qb, c«vq 1065 eQi c‡i h‡Zœi mv‡\_ KvUv c«wZwU nxiKLÊ ‡MvjvKvi ¸wU‡Z cwiYZ n‡e| ïay ZvB bq, c«wZ UyK‡iv cv\_iI cwiYZ n‡e gm…Y ‡Mvj‡K|

Ae¯’v‡bi AwbðqZvi Kvi‡Y wbDK¬xq iƒcvš—iI N‡U ‡h‡Z cv‡i| D`vniY wn‡m‡e nxivi ùwU‡Ki `y‡Uv c«wZ‡ekx cigvYyi K\_v fveyb| Lye Kg NU‡jI A‡bK mgq ‡`Lv hvq, GKwU cigvYyi wbDwK¬qvm ¯^Zù~Z©fv‡eB mvgvb¨ mg‡qi Rb¨ Gi c«wZ‡ekx cigvYyi cv‡k Avwef©~Z nq| wbDwK¬qv‡mi AvKl©Yx ej nqZ ZLb `y‡Uv wbDwK¬qvm‡K ‡Rvov w`‡q g¨vM‡bwmqv‡gi GKwU wbDwK¬qvm evwb‡q ‡`‡e| Zvi gv‡b wbDK¬xq wdDkb (ms‡hvRb) NUvi R‡b¨ Lye D”P ZvcgvÎv bv n‡jI P‡j| kxZj ms‡hvRbI m¤¢e| Z‡e Gi R‡b¨ c«‡qvRb c«Pyi cwigvY mgq| WvBmb wn‡me K‡i ‡`‡L‡Qb, 101500 eQi (Zvi gv‡b 1 Gi c‡i 1500wU k~b¨) c‡i me c`v\_© iƒcvš—wiZ n‡q me‡P‡q w¯’wZkxj wbDwK¬q AvK…wZ jvf Ki‡e| GUv n‡jv ‡jŠn|

Z‡e GUvI cv‡i ‡h wbDwK¬q e¯—ywU GZUv mgq ch©š— wU‡K \_vK‡e bv| Gi KviY n‡jv Lye axiMwZi n‡jI AviI `ª“ZMwZi wbDwK¬q iƒcvš—i c«wµqv| WvBm‡bi cwigv‡c ‡c«vUb‡K (I wbDwK¬qv‡m \_vKv wbDU«b‡K) cy‡ivcywi w¯’wZkxj a‡i ‡bIqv n‡q‡Q| Ab¨ K\_vq, GKwU ‡c«vUb e­¨vK ‡nv‡j cwZZ bv n‡j ev Ab¨ ‡Kv‡bvfv‡e D‡ËwRZ bv n‡j GwU wPiKvj wU‡K \_vK‡e| wKš‘ welqUv wK Avgiv wbwðZ K‡i ej‡Z cvwi? Avgvi QvÎRxe‡b GUv wb‡q Kv‡ivB m‡›`n wQj bv| ‡c«vUbiv wQj Awebk¦i| Zviv wQj cy‡ivcywi w¯’wZkxj| Z‡e GKUyLvwb A¯^w¯—Ki m‡›`n memgqB wQj| mgm¨vwUi mv‡\_ Rwo‡q Av‡Q cwRU«b bv‡g GKwU KYv| GwU B‡jKU«‡bi g‡ZvB| cv\_©K¨ GKwU RvqMvq| ‡c«vU‡bi g‡ZvB Gi PvR© abvZ¥K (‡hLv‡b B‡jKU«‡bi PvR© FYvZ¥K)| ‡c«vU‡bi ‡P‡q Giv A‡bK nvjKv| d‡j, Ab¨ mewKQy wVK \_vK‡j ‡c«vUbiv cwRU«b n‡q ‡h‡Z PvB‡e| c`v\_©we`¨vq ‡fŠZ e¨e¯’v¸‡jv (physical system) GKwU M~p bxwZ ‡g‡b P‡j| GB e¨e¯’v¸‡jv memgq b¨~bZg kw³i Ae¯’vq ‡h‡Z Pvq| Avi Aí fi gv‡b Aí kw³| GLb, ‡KDB ej‡Z cvi‡eb bv ‡Kb ‡c«vUbiv GB KvRwU K‡i bv| ZvB c`v\_©we`iv Abygvb K‡i wb‡jb, c«K…wZi ‡Kv‡bv m~Î nqZ G‡K ‡VwK‡q ‡i‡L‡Q| wKQyw`b Av‡MI welqwU GKg` `~‡e©va¨ wQj| Z‡e ‡Kvqv›Uvg ‡gKvwb‡·i m~Î Abymv‡i wbDwK¬q ej¸‡jv Kxfv‡e GK KYv‡K Ab¨ KYvq iƒcvš—wiZ K‡i ‡m m¤ú‡K© aviYv wKQyUv cwi®‹vi nq 1970 Gi `k‡K| me©‡kl ZË¡¸‡jv Abymv‡i ‡c«vU‡bi ¶‡qi wecix‡Z KvR Kiv m~Î cvIqv hv‡”Q| Z‡e Ggb ‡ewkifvM ZË¡B ej‡Q, m~ÎwU cy‡ivcywi djc«m~ bq| GKwU ‡c«vUb cwRU«‡b iƒcvš—wiZ n‡q hvevi GKwU ‡QvULvU m¤¢vebv ‡\_‡KB hv‡”Q| evwK fiUyKyi wKQy Ask ‰e`¨ywZKfv‡e Avavb wbi‡c¶ ‡Kv‡bv KYvq cwiYZ n‡Z cv‡i| ‡hgb Z\_vKw\_Z cvBIb| wKQy Ask Avevi MwZ kw³ wn‡m‡e Dcw¯’Z \_vK‡Z cv‡i (¶‡qi ‡dj m…ó e¯—y¸‡jv D”P ‡e‡M PjvPj Ki‡e)|

me‡P‡q mij GKwU ZvwË¡K bgybv Abymv‡i ‡c«vUb ¶‡qi Rb¨ Mo mg‡qi c«‡qvRb 1028 eQi| GUv gnvwe‡k¦i eZ©gvb eq‡mi `k nvRvi-‡KvwU-‡KvwU ¸Y| G Kvi‡Y Avcbvi Kv‡Q nqZ g‡b n‡e ‡c«vUb ¶‡qi welqwU ïaygvÎ KvM‡R Kj‡gB mxgve× \_vK‡e| wKš‘ g‡b ivL‡Z n‡e welqwUi mv‡\_ ‡Kvqv›Uvg ‡gKvwb· Rwo‡q Av‡Q| d‡j mnRvZfv‡eB GwU m¤¢vebv-wbfi«| 1028 eQi n‡jv c~e©vfvmK…Z Mo Avqy| me ‡c«vU‡bi c«K…Z Avqy bq| A‡bK ‡ewk ‡c«vU‡bi K\_v we‡ePbv Ki‡j Avgv‡`i ‡Pv‡Li mvg‡bB GKwU ‡c«vU‡bi ¶q ‡`Lvi fvj m¤¢vebv i‡q‡Q| mwZ¨ ej‡Z, 1028 wU ‡c«vU‡bi K\_v we‡ePbv Ki‡j c«vq c«wZ eQi GKwU K‡i ‡c«vUb ¶q nIqvi K\_v| Avi gvÎ 10 ‡KwR c`v‡\_©B Av‡Q 1028wU ‡c«vUb|

Z‡e Avm‡j ‡hUv NUj, ZË¡Uv Rbwc«q nevi Av‡MB ‡c«vU‡bi GB iKg Avqy \_vKvi m¤¢vebv cix¶vg~jKfv‡e evwZj n‡q hvq| wKš‘ ZË¡wUi wewfbœ iƒc‡f‡` AviI ‡ewk Avqyi K\_v ejv n‡q‡Q| 1030 ev 1032 eQi| ev AviI ‡ewk| wKQy wKQy ZË¡ ‡Zv 1080 eQi ch©š— Abygvb K‡i| Aí gvb¸‡jv cix¶vg~jKfv‡e hvPvB‡hvM¨| ‡hgb 1032 eQi ¶qKv‡ji A\_© n‡e Avcbvi cy‡iv Avqy®‹v‡j Avcwb kixi ‡\_‡K GKwU ev `ywU ‡c«vUb nviv‡Z cv‡ib| wKš‘ Ggb `yj©f NUbv Kxfv‡e kbv³ Kiv m¤¢e?

Gi Rb¨ GKwU ‡KŠk‡ji Avk«q ‡bIqv nq| nvRvi nvRvi Ub c`v\_© Ro Kiv nq| Gi ci Lye ms‡e`bkxj wW‡U±i w`‡q eû gvm hveZ G¸‡jvi Ici bRi ivLv nq| wW‡U±i‡K Ggbfv‡e ivLv wQj hv‡Z GKwU ‡c«vUb ¶‡qi Drcv`KI m‡¼Z ‡`‡e| Z‡e `~f©v‡M¨i welq n‡jv ‡c«vUb ¶q ‡LvuRv L‡ii Mv`vq myuB ‡LvuRvi g‡ZvB| KviY, Ggb ¶q gnvRvMwZK wewKi‡Yi c«fv‡e NUv AviI Ggb eû ‡ewkmsL¨K NUbvi Avov‡j Pvcv c‡o hvq| c…w\_ex c«wZ gyn~‡Z© gnvKvk ‡\_‡K Avmv D”Pkw³i KYvi AvNv‡Z RR©wiZ n‡”Q| Gi d‡j AwZcvigvYweK KwYKvi GKwU me©`v-Dcw¯’Z cUf~wg ‰Zwi n‡”Q| GB e¨wZPvi Kgv‡bvi Rb¨ cix¶v Pvjv‡Z nq gvwUi bx‡P|

gvwUi AvagvB‡ji ‡ewk bx‡P G ai‡bi GKwU cix¶v‡K›`« ¯’vcb Kiv nq| RvqMvUv InvB‡qvi wK¬fj¨v‡Ûi GKwU je‡Yi Lwb‡Z Aew¯’Z| 10 nvRvi Ub AwZgvÎvq weï× cvwb‡K NbvKvi U¨vs‡K ‡i‡L wW‡U±i w`‡q ‡NivI K‡i hš¿ wbg©vY Kiv nq| cvwb e¨env‡ii KviY Gi ¯^”QZv| d‡j wW‡U±i GKev‡i h\_vm¤¢e m‡e©v”P msL¨K ‡c«vUb ‡`L‡Z cv‡e| eyw×Uv wQj Ggb: hw` fvj ‡Kv‡bv Z‡Ë¡i K\_v Abymv‡i c«Z¨vwkZ Dcv‡q ‡Kv‡bv ‡c«vU‡bi ¶q N‡U Zvn‡j GwU GKwU cwRU«‡bi cvkvcvwk ‰e`¨ywZKfv‡e wbi‡c¶ cvBIb ‰Zwi Ki‡e| GUv Avgiv Av‡MI e¨vL¨v K‡iwQ| GB cvBIbI Avevi `ª“Z ¶q n‡q hv‡e| mvaviYZ G ¶q ‡\_‡K `ywU Lye ‡ZR¯^x ‡dvUb ev Mvgv iwk¥ ‰Zwi n‡e| ‡k‡l GB Mvgv iwk¥ cvwbi wbDwK¬qv‡mi ‡`Lv cvq| c«wZwU ‡\_‡K ‰Zwi nq GKwU B‡jKU«b-cwRU«b ‡Rvo| GivI nq Lye ‡ZR¯^x| mwZ¨ ej‡Z, GB ‡MŠY B‡jKU«b I cwRU«b¸‡jv GZB ‡ZR¯^x nq ‡h Giv Av‡jvi KvQvKvwQ MwZ‡Z P‡j| GgbwK cvwb‡ZI|

k~b¨ gva¨‡g Av‡jv P‡j ‡m‡K‡Û 3 j¶ wK‡jvwgUvi MwZ‡Z| ‡Kv‡bv KYvB Gi ‡P‡q ‡ewk ‡e‡M Pj‡Z cv‡i bv| GLb, cvwb Av‡jvi MwZ‡K wKQyUv Kwg‡q ‡`q| ‡eM `vuovq 2 j¶ 30 nvRvi wK‡jvwgUvi| d‡j cvwb‡Z c«vq 3 j¶ wK‡jvwgUvi ‡e‡M Pjv D”P MwZi ‡Kv‡bv AwZcvigvYweK KYv cvwb‡Z Av‡jvi ‡e‡Mi ‡P‡q ‡ewk ‡e‡M P‡j| ‡Kv‡bv AvKvkhvb k‡ãi ‡P‡q ‡ewk ‡e‡M Pj‡j Zxe« ¸g ¸g kã nq| Gi bvg mwbK eyg| GKBfv‡e ‡Kv‡bv gva¨‡gi ‡fZi w`‡q Av‡jvi ‡P‡q ‡ewk ‡e‡M Pjv ‡Kv‡bv PvwR©Z KYv ‡mB gva¨‡g GKwU ¯^Zš¿ Zwo”Py¤^Kxq kKI‡qf ‰Zwi Ki‡e| Gi bvg ‡P‡ib‡Kvf wewKiY| c«wµqvwUi i“k Avwe®‹vi‡Ki bv‡gB bvgwU ‡`Iqv| G Kvi‡Y InvBIi cix¶vi Kv‡R wb‡qvwRZ weÁvbxiv ‡P‡ib‡Kvf Sj‡Ki ‡Lvu‡R GK ¸”Q Av‡jvKms‡e`x wW‡U±i ¯’vcb K‡ib| ‡c«vU‡bi ¶q‡K gnvRvMwZK wbDwU«‡bv I Ab¨vb¨ ‡fRvj AwZcvigvYweK aŸsmve‡kl ‡\_‡K Avjv`v Kivi R‡b¨ weÁvbxiv wbw`©ó GKwU m‡¼‡Zi ‡LvuR K‡ib| G‡Ki ci GKB GKBmv‡\_ Avmv ‡P‡ib‡Kvf Av‡jvK m‡¼‡Zi ‡Rvov| GUv wbM©Z n‡e B‡jKU«b-cwRU«‡bi ‡Rvov wfbœw`‡K MwZkxj n‡j|

`~f©vM¨RbKfv‡e K‡qK eQ‡ii AbymÜv‡bi c‡iI InvBIi cix¶v ‡\_‡K ‡c«vUb ¶‡qi c‡¶ ‡Rviv‡jv c«gvY cvIqv hvqwb| Aek¨ PZy\_© Aa¨v‡q ‡hgb ejv n‡q‡Q, G cix¶vq mycvi‡bvfv Ò1974GÓ ‡\_‡K Avmv wbDwU«‡bv aiv c‡o| (weÁv‡b GgbUv nignv‡gkvB N‡U| GKwU wRwbm LyuR‡Z wM‡q Ac«Z¨vwkZfv‡e Ab¨ wRwbm cvIqv hvq) GB eBwU ‡jLvi mgq ch©š—5 Avjv`v ‡KŠk‡j wbwg©Z Ab¨ cix¶vi djvdjI bv‡evaK| Gi A\_© n‡Z cv‡i, ‡c«vUbiv ¶qB nq bv| Avevi GI n‡Z cv‡i, Giv ¶q nq, Z‡e G‡`i Avqy®‹vj 1032 eQ‡ii ‡ewk| eZ©gvb mg‡qi cix¶Y DcKiY w`‡q Gi ‡P‡q axiMwZi ¶q nvi cwigvc Kiv m¤¢e bq| ZvB wbKU fwel¨‡Z ‡c«vUb ¶‡qi e¨vcv‡i ‡Kv‡bv fvj djvdj cvIqvi m¤¢ebvI ‡`Lv hv‡”Q bv|

A‡bK¸‡jv gnv GKxf~Z ‡¶Î ZË¡ (Grand unified theory) welqK ZvwË¡K Kv‡Ri gva¨‡g ‡c«vUb ¶‡qi AbymÜvb ïi“| j¶¨ wQj mej (mej e‡ji KvR n‡jv wbDwK¬qv‡mi g‡a¨ ‡c«vUb I wbDU«b‡`i‡K ‡Mu‡\_ ivLv) I `ye©j wbDK¬xq ej (`ye©j wbDK¬xq ej ‡eUv ‡ZRw¯ŒqZvi Rb¨ `vqx) Ges Zwo”Py¤^Kxq ej‡K ‡Rvov ‡`Iqv| GB ej¸‡jvi m~² wgk«‡YI ‡c«vUb ¶q NU‡e| Z‡e GB gnvGKfxeb fyj n‡q \_vK‡jI Ab¨ Dcv‡qI ‡c«vUb ¶q nIqvi m¤¢vebv Av‡Q| GUv n‡Z cv‡i c«K…wZi PZy\_© ‡gŠwjK ej gnvK‡li« gva¨‡g|

gnvKl© Kxfv‡e ‡c«vUb ¶q NUvq ‡mUv ‡`L‡Z n‡j GKwU welq gv\_vq ivL‡Z n‡e| ‡c«vUb wKš‘ mwZ¨Kvi A‡\_© ‡gŠwjK KYv bq| ‡bB ‡Kv‡bv we›`ym`…k AvK…wZ| GwU Avm‡j GKwU ‡hŠwMK KYv| ‡KvqvK© bv‡g AviI wZbwU ‡QvU KYv w`‡q GwU ‰Zwi| ‡ewkifvM mg‡qB ‡c«vU‡bi e¨vm nq GK ‡mw›UwgUv‡ii c«vq 10 j¶ ‡KvwU fv‡Mi GK fv‡Mi mgvb| GUv n‡jv ‡KvqvK©‡`i ga¨Kvi Mo `~iZ¡| Z‡e ‡KvqvKi«v w¯’i \_v‡K bv| ‡c«vU‡bi g‡a¨ AweiZ Ae¯’vb e`jv‡Z \_v‡K| GiI KviY ‡Kvqv›Uvg MwZwe`¨vi AwbðqZv| gv‡Sg‡a¨B `ywU ‡KvqvK© G‡K Ic‡ii Lye Kv‡Q P‡j Av‡m| AviI Kg NU‡jI A‡bK mgq wZbwU ‡KvqvK©B Lye Kv‡Q P‡j Av‡m| Ggwb‡Z ‡KvqvK©‡`i ga¨Kvi gnvKl© ej G‡Kev‡iB Aby‡j­L‡hvM¨| Z‡e GUv Am¤¢e bq ‡h KYv¸‡jv GZUv Kv‡Q Avm‡e ‡h Zv‡`i ga¨Kvi gnvKl© ej Ab¨ me wKQyi ‡P‡q kw³kvjx n‡e| GUv mwZ¨ n‡q \_vK‡j ‡KvqvKi«v Ro n‡q GKwU ¶y`« e­¨vK ‡nvj ‰Zwi Ki‡Z cv‡i| c«K…Z A‡\_© ‡Kvqv›Uvg ‡gKvwb‡·i ‡Kvqv›Uvg Uv‡bwjs‡qi c«fv‡e ‡c«vUb wb‡Ri gnvK‡li« fv‡iB ¸wU‡q hvq| Gi d‡j c«vß ¶y`« e­¨vK‡nvjwU nq Lye Aw¯’wZkxj| nwKs c«wµqvi K\_v g‡b K‡i ‡`Lyb| ‡c«vUb ¶q ‡\_‡K c«vß e­¨vK‡nvjI mv‡\_mv‡\_B Avevi DavI n‡q hvq| ‰Zwi nq GKwU cwRU«b| GB Dcv‡q ‡c«vUb ¶‡qi Rb¨ c«‡qvRbxq mgq GLbI mwVKfv‡e cwigvc Kiv m¤¢e nqwb| Z‡e mgqUv 1045 eQi ‡\_‡K 10220 eQi ch©š— n‡Z cv‡i|

`xN© mgq ci ‡c«vUb ¶qB n‡q ‡M‡j gnvwe‡k¦i `~i fwel¨‡Zi Ici Zvi eo c«fve \_vK‡e| me c`v\_© n‡q hv‡e Aw¯’wZkxj| Ges me‡k‡l DavI| M«n‡`i g‡Zv KwVb e¯—yiv e­¨vK‡nv‡jI cwZZ bv n‡jI wPiKvj \_vK‡e bv| Lye `ª“ZB µgk wgwj‡q hv‡e| ‡c«vU‡bi Avqy®‹vj 1032 n‡j Zvi A\_© n‡e c…w\_ex c«wZ ‡m‡K‡Û GK j¶-‡KvwU ‡c«vUb nviv‡”Q| GB nv‡i Pj‡Z \_vK‡j ‡gvUvgywU 1033 eQi c‡i Avgv‡`i c…w\_ex wbt‡kl n‡q hv‡e| Aek¨ Zvi Av‡MB Ab¨ Kvi‡Y c…w\_ex aŸsm n‡q ‡M‡j wfbœ K\_v|

Z‡e wbDU«b b¶Î wKš‘ GB cwµqv ‡\_‡K gy³| wbDU«bivI wZbwU ‡KvqvK© w`‡q MwVZ| ‡h c«wµqvq ‡c«vUb aŸsm nq ‡gvUvgywU ‡mfv‡eB wbDU«bI AviI nvjKv KYvq cwiYZ n‡Z cv‡i| (wew”Qb wbDU«b KYv ‡h‡Kv‡bv Ae¯’v‡ZB Aw¯’wZkxj Ges 15 wgwb‡Ui g‡a¨B ¶q n‡q ‡h‡Z cv‡i|) ‡k¦Z evgb b¶Î, cv\_i, a~jv, a~g‡KZy, M¨v‡mi nvjKv ‡gN Ges Ab¨me gnvKvk c«hyw³I GKBfv‡e Kv‡ji M‡f© nvwi‡q hv‡e| Avgiv eZ©gv‡b ‡h 1048 Ub c`v\_©‡K cy‡iv gnvwe‡k¦ Qwo‡q \_vK‡Z ‡`LwQ ‡mUvI GKmgq wbt‡kl n‡q hv‡e| nq e­¨vK‡nv‡ji g‡a¨ cwZZ n‡e| bq‡Zv ax‡i ax‡i wbDK¬xq ¶q c«wµqvi gva¨‡g ‡kl n‡e|

‡c«vUb I wbDU«bivI ¶q n‡j Aek¨B ‰Zwi nq aŸsmve‡kl| d‡j gnvwek¦ cy‡ivcywi c`v\_©nxb n‡q hv‡e Ggb ‡Kv‡bv K\_v ‡bB| Gi GKwU D`vniY Av‡MI ‡`Iqv n‡q‡Q| ‡c«vUb ¶‡qi m¤¢ve¨ GKwU Dcvq n‡jv GKwU cwRU«b I GKwU wbi‡c¶ cvBIb ‰Zwi nIqv| cvBIb Lye Aw¯’wZkxj| Lye `ª“Z ¶q n‡q `y‡Uv ‡dvU‡b cwiYZ nq| A\_ev B‡jKU«b-cwRU«b ‡Rvov| `yB ‡¶‡ÎB ‡c«vUb ¶‡qi d‡j gnvwek¦ µgvMZ ‡ewk ‡ewk cwRU«b w`‡q ficyi n‡Z \_vK‡e| c`v\_©wew`‡`i wek¦vm, gnvwe‡k¦ abvZ¥K (c«avbZ ‡c«vUb) I FYvZ¥K PvR©avix (c«avbZ B‡jKU«b) KYvi msL¨v mgvb| Gi A\_© n‡jv, me¸‡jv ‡c«vUb ¶q n‡q ‡M‡j B‡jKU«b I cwRU«‡bi cwigvY mgvb n‡e| GLb, cwRU«b n‡jv B‡jKU«‡bi c«wZKYv| B‡jKU«b I cwRU«‡bi ‡`Lv n‡j G‡K Ici‡K ‡kl K‡i ‡`q| cix¶vMv‡i GB c«wµqvwU Abvqv‡m K‡i ‡`Lv nq| KYv `ywUi mv¶v‡Zi d‡j ‡dvUb KYv AvKv‡i c«Pyi cwigvY kw³ Aegy³ nq|

`~i fwel¨‡Zi gnvwe‡k¦ Dcw¯’Z cwRU«b I B‡jKU«b G‡K Ici‡K cy‡ivcywi aŸsm K‡i ‡`‡e bvwK GKwU KYvi wKQy Ask evwK ‡\_‡K hv‡e ‡mUv Rvb‡Z A‡bK wnmve-wbKvk Kiv n‡q‡Q| aŸsm nIqvi NUbv ûU K‡i N‡U bv| eis GKwU B‡jKU«b I cwRU«b c«\_‡g wb‡R‡`i‡K cwR‡U«vwbqvg bv‡g GKwU ¶y`« cigvYy‡Z mw¾Z K‡i| GLv‡b `yR‡bB Zv‡`i ‡hŠ\_ fi‡K›`«‡K6 c«`w¶Y K‡i| wb‡R‡`i ga¨Kvi ‰e`¨ywZK AvKl©‡Yi c«fv‡e bvP‡Z bvP‡Z ‡e‡R hvq g…Z¨yNÈv| Gfv‡e KYv¸‡jv mwc©j c\_ ‡e‡q GKmgq g…Z¨yi `yqv‡i ‡cŠu‡Q hvq| mwc©j c‡\_ KYv¸‡jv KZ mgq \_vK‡e Zv cwR‡U«vwbqvg 'cigvYywU' ‰Zwi nevi mgq B‡jKU«b I cwRU«‡bi g‡a¨ c«v\_wgK ‡h `~iZ¡ wQj Zvi Ici wbfi« K‡i| cix¶vMv‡i cwRU«wbqvg ¶q n‡Z GK ‡m‡K‡Ûi Lye ¶y`« GKwU Ask mgq e¨q nq| wKš‘ evB‡ii gnvk~‡b¨ KYv¸‡jv‡K wb‡q bvK Mjv‡bvi g‡Zv ‡Zgb ‡KD ‡bB| d‡j G‡`i K¶c\_ n‡Z cv‡i A‡bK wekvj| cwigvc K‡i ‡`Lv ‡M‡Q, B‡jKU«b I cwRU«b ‡\_‡K cwR‡U«vwbqvg ‰Zwi n‡Z 1071 eQi mgq jv‡M| Z‡e ‡ewkifvM ‡¶‡Î G‡`i K¶c\_ eû wU«wjqb Av‡jvKel© PIov nq| KYv¸‡jv GZUv ax‡i Pj‡e ‡h GK ‡mw›UwgUvi `~iZ¡ AwZµg Ki‡Z mgq jvM‡e eû wgwjqb eQi| B‡jKU«b I cwRU«b GZUvB axiMwZi n‡q hv‡e ‡h mwc©j c‡\_ Pj‡Z 10116 eQ‡ii g‡Zv `xN© mgq jvM‡e| ZeyI GB cwR‡U«vwbqv‡gi P~ovš— wbqwZ wKš‘ GwU ‰Zwi nIqvi mgqB wba©vwiZ n‡q ‡M‡Q|

A™¢yZ e¨vcvi n‡jv me B‡jKU«b I cwRU«b‡K wKš‘ aŸsm n‡Z nq bv| ‡h mgq a‡i B‡jKU«b I cwRU«biv Zv‡`i wecixZ wPý LyuR‡Z \_v‡K ‡m mg‡qB Zv‡`i NbZ¡ wbw`©ó nv‡i Kg‡Z \_v‡K| Gi ‡cQ‡b `y‡Uv KviY KvR K‡i| GKwU n‡jv aŸsm nIqvi c«wµqvwUB| Avi Av‡iKwU n‡jv gnvwe‡k¦i wPiš—b c«mviY| mg‡qi mv‡\_ mv‡\_ bZyb bZyb cwR‡U«vwbqvg ‰Zwi KwVb n‡q c‡o| d‡j Aewkó c`v‡\_i« mvgvb¨ aŸsmve‡kl Kg‡Z \_vK‡j GwU KL‡bvB cy‡ivcywi ‡kl n‡q hvq bv| memgqB ‡Kv\_vI bv ‡Kv\_vI B‡jKU«b ev cwRU«‡bi ‡e‡Rvo msL¨v cvIqv hv‡e| hw`I Ggb c«wZwU KYvB µgvMZ eo n‡q IVv k~b¨ ¯’v‡bi g‡a¨ GKv GKv Ae¯’vb K‡i|

axiMwZi GZme gvivZ¥K c«wµqv¸‡jv ‡k‡l gnvwek¦ ‡Kgb n‡Z cv‡i Zvi GKwU ‡gvUvgywU wPÎ Avgiv Abygvb Ki‡Z cvwi| c«\_gZ \_vK‡e weM e¨vs‡qi aŸsmve‡kl| memgq Dcw¯’Z \_vKv gnvRvMwZK cUf~wg| G‡Z i‡q‡Q ‡dvUb I wbDwU«‡bv| Avevi Avgv‡`i GLbI A‡Pbv cy‡ivcywi w¯’wZkxj ‡Kv‡bv KYvI \_vK‡Z cv‡i| gnvwe‡k¦i c«mvi‡Yi mv‡\_ mv‡\_ GB KYv¸‡jvi kw³ Kg‡Z \_vK‡e| hZ¶Y bv G‡`i cUf~wg Lye nvjKv n‡q hvq| gnvwe‡k¦i mvaviY c`v\_©¸‡jv wbt‡kl n‡q hv‡e| me¸‡jv e­¨vK‡nvjI ‡kl n‡q hv‡e| e­¨vK‡nv‡ji ‡ewkifvM fi ‡dvU‡b cwiYZ n‡e| Avi wKQy Ask \_vK‡e wbDwU«‡bv AvKv‡i| Avi LyeB mvgvb¨ GKwU Ask \_vK‡e B‡jKU«b, ‡c«vUb, wbDU«b I AviI fvix KYv iƒ‡c| G¸‡jv wbM©Z n‡qwQj e­¨vK ‡nv‡ji G‡Kev‡i Awš—g we‡ùvi‡Yi av°vq| fvix KYv¸‡jvi mevB Lye `ª“Z ¶q nq| Avi wbDU«b I ‡c«vUb ¶q nq AviI ax‡i| d‡j G‡`i mv‡\_ ‡hvM ‡`q wKQy B‡jKU«b I cwRU«b KYviv| Avgiv AvR‡K ‡h mvaviY c`v\_© ‡`LwQ GB KYv¸‡jvB n‡jv Zvi me©‡kl ¯§…wZwPý|

Zvi gv‡b `~i fwel¨‡Zi gnvwek¦ n‡e ‡dvUb, wbDwU«‡bv Ges µgvMZ Kg‡Z \_vKv B‡jKU«b I cwRU«‡bi GKwU AwPš—bxq ai‡bi nvjKv m¨y‡ci g‡Zv| GB KYv¸‡jvi mevB ax‡i ax‡i AviI `~‡i mi‡Z \_vK‡e| GLb ch©š— Avgiv hZUyKy Rvwb, Gi c‡i Avi ‡Kv‡bv ‡fŠZ cwµqv msNwUZ n‡e bv| Ggb ‡Kv‡bv Zvrch©c~Y© NUbv NU‡e bv hv‡Z gnvwe‡k¦i eÜ¨v‡Z¡i Aemvb NU‡Z cv‡i| hvÎvc‡\_i ‡k‡l G‡mI gnvwek¦ ‡hb ‡cj wPiš—b Rxeb| A\_ev wPiš—b g…Z¨y ej‡jB nqZ mwVK ejv n‡e|

Ebwesk kZ‡Ki c`v\_©we`¨vq Zvcxq g…Z¨y (heat death) bv‡g GKwU aviYv c«PwjZ wQj| Avgv‡`i Av‡jvPbvq Avmv kxZj, AÜKvi, ‰ewkó¨nxb c«vq k~b¨ GB wbim wPÎB AvaywbK Km‡gvjwRi Zvcxq g…Z¨yi me‡P‡q KvQvKvwQ weeiY| gnvwek¦ GB Ae¯’vq Avm‡Z GZ ‡ewk mgq jvM‡e ‡h GUv Kíbv KivI gvby‡li c‡¶ Am¤¢e| ZeyI GwU Amxg mg‡qi AwZkq ¶y`« GKwU AskB gvÎ| Av‡MB e‡jwQ, wPiKvj GKwU `xN© mgq|

GUv mwZ¨ ‡h gnvwe‡k¦i ¶q c«wµqv m¤úbœ n‡Z ‡h mg‡qi c«‡qvRb ‡mwU gvbexq mg‡qi gvcKvwV‡Z A‡bK A‡bK ‡ewk| GZB ‡ewk ‡h ‡m mgqUv Avm‡j Avgv‡`i Kv‡Q A\_©nxb| ZeyI Avgiv AvM«nf‡i c«kœ Kwi, ÒAvgv‡`i cieZ©x c«R‡b¥i fv‡M¨ Kx NU‡e? Zviv wK Awbevh©fv‡e Ggb GK gnvwe‡k¦ ew›` n‡e hv Lye ax‡i n‡jI Ac«wZ‡iva¨fv‡e Zv‡`i Pvicv‡k APj n‡q hv‡e? `~i fwel¨‡Zi gnvwek¦ m¤ú‡K© weÁv‡bi c~e©vfvm Lye ‡ewk c«wZk«ywZkxj bq| d‡j g‡b n‡”Q ‡Kv‡bv ai‡bi Rxe‡bi R‡b¨B AbyK~j ‡Kv‡bv cwi‡ek \_vK‡e bv| Z‡e g…Z¨y AZ mnRI bq|

Abyev`‡Ki ‡bvU

1| GK wU«wjqb = GK j¶ ‡KvwU| gv‡b 1 Gi ci 12wU k~b¨ w`‡Z n‡e| A\_©vr, 1,000,000,000,000|

2| ‡h NUbvi djvdj Av‡M ‡\_‡K wbw`©ó K‡i ejv hvq bv Zv‡K ‰`e ev i‍¨vÛg NUbv e‡j|

3| cig k~b¨ ZvcgvÎv: 0 ‡Kjwfb ev gvBbvm 273.16 wWwM« ‡mjwmqvm‡K cig k~b¨ ZvcgvÎv ejv nq| ZvwË¡Kfv‡e GUvB gnvwe‡k¦i m¤¢ve¨ b~b¨Zg ZvcgvÎv|

4| k~b¨ gva¨‡g Av‡jvi ‡eM 3 j¶ wK‡jvwgUvi n‡jI cvwb‡Z GB ‡eM A‡bKUv Kg| cvwbi Nb‡Z¡i Ici GUv wbfi« Ki‡jI ‡eMUv ‡gvUvgywU ‡m‡K‡Û c«vq 2 j¶ 30 nvRvi wK‡jvwgUvi| wKš‘ B‡jKU«b I cwRU«biv cvwb‡ZI k~b¨ gva¨‡g Av‡jvi ‡e‡Mi KvQvKvwQ ‡e‡M P‡j|

5| GB eBwUi Av‡jvP¨ Ask Abyev‡`i mgqI (‡de«yqvwi, 2020) ‡c«vUb ¶‡qi cix¶vg~jK c«gvY cvIqv hvqwb|

6| ‡Kv‡bv GKwU wm‡÷‡gi me¸‡jv As‡ki Mo Ae¯’vb‡K fi‡K›`« e‡j| ‡hgb, e…‡Ëi ‡¶‡Î Gi ‡K›`«B fi‡K›`«| GKB K\_v c«‡hvR¨ ‡Mvj‡Ki ‡¶‡ÎI| Avgiv A‡bK mgq ewj, evBbvwi ÷vi ev ‡RvovZviviv G‡K Ici‡K ‡K›`« K‡i ‡Nv‡i| Avm‡j wKš‘ Zviv `yR‡bi ‡hŠ\_ fi‡K›`«‡K wN‡i cvK Lvq| ‡mB fi‡K›`« mvaviYZ `y‡Uv Zvivi gvSvgvwS ‡Kv‡bv ¯’vb nq| Avevi Avgiv Rvwb, c…w\_ex,I e…wn¯úwZi g‡Zv M«niv m~h©K‡R wN‡i cvK Lvq| Z‡e ev¯—eZv n‡jv e…n¯úwZ Avm‡j wVK m~h©‡K ‡K›`« K‡i ‡Nv‡i bv| ‡Nv‡i m~‡hi« cwiwai evB‡ii GKwU we›`y‡K wN‡i|

Aóg Aa¨vq

axi MwZi Rxeb

1972 mv‡j K¬ve Ae ‡ivg bv‡g GKwU msMVb gvby‡li fwel¨r m¤ú‡K© `¨ wjwgUm Uy ‡M«v\_ GKwU ‡bwZevPK c~e©vfvm c«Kvk K‡i| Zviv Avmbœ wewfbœ `~‡h©vM welqK A‡bK¸‡jv Avk¼v c«Kvk K‡i G‡Z| Gi ga¨ Ab¨Zg wQj Rxevk¥ R¡vjvwb welqK| Zv‡`i g‡Z, Aí K‡qK `k‡Ki g‡a¨ c…w\_exi me Rxevk¥ R¡vjvwb dywi‡q hv‡e| gvbyl fq ‡cj| ‡Z‡ji `vg ‡Mj ‡e‡o| weKí R¡vjvwb wb‡q M‡elYv MwZ ‡cj| GLb Avgiv 1990 Gi `k‡K AvwQ|1 wKš‘ Rxevk¥ R¡vjvwb dywi‡q hvIqvi j²Y GLbI wKš‘ ‡`Lv hv‡”Q bv| d‡j f‡qi e`‡j GLb mevi g‡b i‡q‡Q cwiZ…wß| `~f©v‡M¨i e¨vcvi n‡jv, mij MvwYwZK wnmve ej‡Q, m¤ú‡`i mmxg cwigvY wPiKvj hveZ wbw`©ó nv‡i Kg‡Z \_vK‡Z cv‡i bv| AvR ‡nvK, Kvj ‡nvK, R¡vjvwb NvUwZi gy‡LvgywL Avgv‡`i‡K n‡ZB n‡e| c…w\_exi RbmsL¨v m¤ú‡K©I GKB K\_v Lv‡U| Awbw`©ó mgq a‡i GUv Ae¨vnZ \_vK‡Z cv‡i bv|

‡R‡iwgqv ag©xq ‡Mvôxi wKQy wKQy gvbyl g‡b K‡i, Avmbœ R¡vjvwb m¼U I AwZRbmsL¨vi d‡j gvbyl G‡Kev‡i aŸsm n‡q hv‡e| Z‡e Rxevk¥ R¡vjvwb wbt‡kl n‡q ‡M‡jB gvby‡liI Aemvb N‡U hv‡e GUv ejv hv‡e bv| Avgv‡`i Pvicv‡k R¡vjvwbi wecyj Drm i‡q‡Q| Aek¨ ‡mUv Kv‡R jvMv‡bvi g‡Zv eyw×gËv \_vKv PvB| me‡P‡q D‡j­L‡hvM¨ welq n‡jv, Avgv‡`i hZUyKy kw³ `iKvi m~‡hi« Av‡jv‡Z Zvi ‡P‡q ‡ewk kw³ i‡q‡Q| Av‡iKwU eo mgm¨vI Av‡Q| nqZ RbmsL¨vi e…w× Avgiv Kgv‡bvi Av‡MB Lv`¨vfv‡e ‡mUv Ggwb‡ZB K‡g hv‡e| Gi R‡b¨ ‰eÁvwbK ‡KŠk‡ji ‡P‡q mvgvwRK, A\_©‰bwZK I ivR‰bwZK ‡KŠkj ‡ewk c«‡qvRb| Z‡e Avgvi wek¦vm, Rxevk¥ R¡vjvwb dywi‡q ‡M‡j kw³i ‡h NvUwZ ‰Zwi n‡e ‡mUvi mgvavb Kiv ‡M‡j Ges Avgv‡`i M«‡ni ev¯—y¸Z I M«nvYyi AvNvZRwbZ ¶wZ Kwg‡q Avbv ‡M‡j gvby‡li fwel¨r D¾¡j| gvbeRvwZi fwel¨Z‡K mxwgZ Kivi g‡Zv ¯úó ‡Kv‡bv wbqg c«K…wZ‡Z ‡Pv‡L co‡Q bv|

Av‡Mi Aa¨vq¸‡jv‡Z Avwg e‡jwQ Kxfv‡e Am¤¢e `xN© mgq c‡i gnvwe‡k¦i KvVv‡gv e`‡j hv‡e| mvaviYZ Gi gva¨‡g axiMwZi ‡fŠZ c«wµqvi c«fv‡e gnvwek¦ wb‡Ri ‰ewkó¨¸‡jv nviv‡e| c…w\_ex‡Z gvby‡li Aw¯—Z¡ Av‡Q c«vq 50 j¶ eQi n‡jv (GUv wbfi« K‡i gvby‡li msÁvi Ici)| Avi mf¨Zvi m~Pbv K‡qK nvRvi eQi Av‡M| GLb ‡\_‡K AviI `yB ev wZb k ‡KvwU eQi c…w\_ex evm‡hvM¨ \_vK‡e| Z‡e RbmsL¨v Aek¨B K‡g hv‡e| mgqUv GZ `xN© ‡h ‡mUv Kíbv KivI KwVb n‡q `vuovq| G‡K GZB eo g‡b nq ‡h ‡mUv‡K ev¯—‡e Amxg mgq e‡j g‡b nq| ZeyI Avgiv ‡`‡LwQ, gnvwe‡k¦i weeZ©‡bi R‡b¨ ‡h `xN© mg‡qi c«‡qvRb nq ‡m Zyjbvq GK k ‡KvwU eQiI Lye bwm¨| AviI wewjqb wewjqb eQi c‡iI Avgv‡`i Qvqvc‡\_i Ab¨ ‡Kv\_vI c…w\_exi g‡Zv Avevm \_vK‡ZB cv‡i|

Avgiv Kíbv Ki‡ZB cvwi Avgv‡`i eskaiiv GZ mgq nv‡Z ‡c‡q gnvk~‡b¨ Qy‡U ‡eov‡e| evbv‡e me ai‡bi we¯§qKi hš¿cvwZ| m~h© c…w\_ex‡K cywo‡q ‡djvi Av‡M Av‡M cvjv‡bvi h‡\_ó mgq Zviv cv‡e| Lyu‡R wb‡Z cvi‡e Ab¨ GK M«n| Zvici Av‡iKwU| Zvici Av‡iKwU| gnvk~‡b¨ Qwo‡q co‡j RbmsL¨vI evo‡e| GUv ‡R‡b wK Avgiv Avk¦¯— nw”Q ‡h wesk kZ‡K Avgv‡`i wU‡K \_vKvi jovB ‡kl ch©š— e¨\_© bvI n‡Z cv‡i?

wØZxq Aa¨v‡q Avwg e‡jwQ, evU«©vÛ iv‡mj ZvcMwZwe`¨vi wØZxq m~‡Îi djvdj wb‡q nZvkv”Qvbœ wQ‡jb| hš¿Yvf‡i wZwb wj‡LwQ‡jb, ‡h‡nZy ‡mŠiMRMr GK mgq aŸsm n‡q hv‡”Q, ZvB gvby‡li Aw¯—Z¡I GKmgq wbõj n‡e| iv‡mj ¯úó Abyfe K‡iwQ‡jb, Avgv‡`i evm¯’v‡bi ¯úó Awbevh© g…Z¨y ‡Kv‡bvfv‡e gvbeRxeb‡K A\_©nxb wKsev c«nm‡b cwiYZ K‡i‡Q| GUv wbwðZ GB wek¦vm Zv‡K bvw¯—K evbv‡bvi c‡\_ Ae`vb ‡i‡L‡Q| e­¨vK‡nv‡ji gnvKl©xq kw³ m~‡hi« eû¸Y ‡ewk Ges ‡mŠiRMr ZQbQ n‡q hvIqviI j¶ j¶ ‡KvwU eQi ch©š— wU‡K \_vK‡e Rvb‡j wK wZwb Av‡iKUy fvj Abyfe Ki‡Zb? Avm‡j mgqUv KZ `xN© ‡mUv g~L¨ bq| g~j welq n‡jv, AvR ‡nvK, Kvj ‡nvK, gnvwek¦ GK mgq ev‡mi A‡hvM¨ n‡q hv‡e| G Kvi‡Y ‡KD ‡KD g‡b K‡ib, Avgv‡`i Aw¯—Z¡ A\_©nxb|

mßg Aa¨v‡qi ‡k‡l gnvwe‡k¦i `~i fwel¨‡Zi GKwU wPÎ Zy‡j aiv n‡qwQj| nqZ Avgiv a‡i wb‡Z cvwi, AviI Kg cwieZ©b‡hvM¨ I ‡ewk ‰ewi cwi‡ek ‰Zwi n‡e bv ej‡jB P‡j| Z‡e Avgv‡`i fvebvB ‡h mwVK ‡mUv a‡i ‡bIqv hv‡e bv| Avevi nZvkI nIqv hv‡e bv| B‡jKU«b I cwRU«b w`‡q Mov GK cvZjv m¨y‡ci g‡Zv gnvwe‡k¦ evm Kiv gvby‡li c‡¶ wbtm‡›`‡n KwVb n‡e| Z‡e Avgv‡`i K\_v ‡mLv‡b bq| Aek¨B gvbe c«RvwZ Agi wK bv Avgiv ‡mUv wb‡q K\_v ejwQ bv| Avgv‡`i eskaiiv wU‡K \_vK‡Z cvi‡e wK bv ‡mUv ejwQ| Avi Avgv‡`i eskaiiv ‡h gvbylB n‡e Zvi m¤¢ebvI Kg|

Rx‡ei weeZ©‡bi2 gva¨‡g c…w\_ex‡Z ‡nv‡gv m¨vwc‡qÝ‡`i Avwef©ve N‡U‡Q| wKš‘ Avgv‡`i Kvh©µ‡gi gva¨‡g weeZ©b c«wµqv Ley `ª“Z e`‡j hv‡”Q| c«vK…wZK wbe©vPb c«wµqvq Avgiv n¯—‡¶c K‡i ‡d‡jwQ| wgD‡Ukb ev cwie¨w³‡KI wbqš¿Y Kiv w`b w`b mnR n‡q hv‡”Q| wRbMZ cwieZ©‡bi gv‡a¨g Lye `ª“ZB nqZ Avgiv B‡”Qg‡Zv ¸Y I kvixwiK ‰ewk‡ó¨m¤úbœ gvbyl evbv‡Z cvie| ‰Rec«hyw³i GB m¤¢vebv¸‡jv gvÎ K‡qK `k‡Ki g‡a¨ ‰Zwi n‡q‡Q| GKevi fveyb, nvRvi nvRvi ev j¶ eQ‡ii weÁvb I c«hyw³i PP©vi gva¨‡g Kx m¤¢e n‡Z cv‡i|

gvÎ K‡qK `k‡KB gvbyl M«n ‡\_‡K ‡ei n‡q wbKU gnvKv‡k cvwo w`‡Z m¶g n‡q‡Q| Avgv‡`i cieZ©x c«Rb¥ nqZ c…w\_ex Qvwo‡q ‡mŠiRM‡Zi AviI `~i-`~iv‡š— Qwo‡q co‡e| Zvici hv‡e Qvqvc‡\_i Ab¨ b¶‡Î| A‡bK mgq gvbyl fyj K‡i g‡b K‡i, G KvR Ki‡Z Amxg mgq jvM‡e| Avm‡j Zv bq| emwZ Movi c«wµqvwU nqZ n‡e evievi M«nvš—‡ii gva¨‡g| emwZ¯’vcbKvixiv c…w\_ex ‡Q‡o K‡qK Av‡jvKel© `~‡ii Ab¨ ‡Kv‡bv Dchy³ M«‡n VvuB ‡b‡e| Av‡jvi KvQvKvwQ ‡e‡M Pj‡Z cvi‡j Zv‡Z mgq jvM‡e gvÎ K‡qK eQi| Avgv‡`i eskaiiv Av‡jvi GK fv‡Mi g‡Zv h‡\_ó MwZ AR©b Ki‡Z bv cvi‡jI åg‡Y mgq jvM‡e gvÎ K‡qK k eQi| bZyb GKwU emwZ cy‡ivcywi M‡o Zyj‡Z nqZ AviI K‡qK k eQi jvM‡e| ZZ¶‡Y bZyb ‡Kv‡bv M«‡ni mÜv‡b GK `j AwfhvÎx‡K cvwV‡q ‡`Iqvi wPš—v Kiv hv‡e| AviI K‡qK k eQi c‡i ‡mB M«‡nI emwZ M‡o IV‡e| Gfv‡eB Pj‡Z \_vK‡e| cwj‡bkxqiv ga¨ c«kvš— gnvmvMixq AÂ‡ji Øxc¸‡jv‡Z Gfv‡eB emwZ wbg©vY K‡iwQj|

Qvqvc\_‡K AwZµg Ki‡Z Av‡jvi GK j¶ eQi mgq jv‡M| Av‡jvi ‡e‡Mi GK fvM ‡e‡M Pj‡j Zv‡Z mgq jvM‡e GK ‡KvwU eQi| GB hvÎvc‡\_ GK j¶ M«‡n emwZ¯’vcb Kiv ‡M‡j Ges c«wZwUi R‡b¨ `yB k eQi jvM‡j cy‡iv Qvqvc‡\_ emwZ Mvuo‡Z Qvqvc\_ cvi nevi mg‡qi wZb¸‡Yi ‡ewk mgq jvM‡e bv| Z‡e gnvKvk ev f~ZvwË¡K gvcKvwVi Zyjbvq GK ‡KvwU eQi Lye Aí mgq| m~h© cy‡iv Qvqvc\_‡K GKevi Ny‡i Avm‡Z c«vq 20 ‡KvwU eQi mgq ‡bq| Gi Aš—Z 17 ¸Y mgq a‡i c…w\_ex‡Z c«v‡Yi Aw¯—Z¡ Av‡Q| m~‡hi« eva¨©‡Ki Kvi‡Y c…w\_ex wec‡` co‡Z gvÎ `yB bv w`b k ‡KvwU eQi jvM‡e| d‡j AviI wZb ‡KvwU eQ‡i Lye Aí cwieZ©bB NU‡e| Zvi gv‡b ej‡Z Pvw”Q, c…w\_exi ey‡K c«hyw³MZ mf¨Zv M‡o DV‡Z hZUyKy mgq ‡j‡M‡Q, cy‡iv Qvqvc‡\_ emwZ Mo‡Z Zvi Lye mvgvb¨ fMœvs‡ki mgvb mgq jvM‡e|

emwZ M‡o ‡Zvjv Avgv‡`i GB eskaiiv ‡Kgb n‡e? Kíbvi ‡Nvov‡K B‡”Qg‡Zv QyU‡Z w`‡j Avgiv aviYv Ki‡Z cvwi, wRbMZ cwieZ©‡bi gva¨‡g Zviv KvwO&¶Z M«‡ni cwi‡e‡ki mv‡\_ wb‡R‡`i gvwb‡q wb‡Z cvi‡e| GKwU mij D`vniY wPš—v Kwi| aiv hvK, GcmvBjb GwiWvwb b¶‡Îi Pvicv‡k N~Y©vqgvb c…w\_exi g‡Zv GKwU M«n cvIqv ‡Mj| ‡`Lv ‡Mj, Gi evqygÊ‡j Aw·‡Rb Av‡Q gvÎ 10%| Zvn‡j Awaevmx‡`i ‡`n‡K cwieZ©b K‡i ‡jvwnZ i³KwYKv evov‡Z n‡e| M«nwUi c…‡ôi gnvKl© ‡ewk n‡j Awaevmx‡`i ‡`nKvVv‡gv‡K AviI kw³kvjx Ki‡Z n‡e| nvo‡KI k³ Ki‡Z n‡e| Gfv‡eB mewKQy e`‡j wb‡Z n‡e|

GB åg‡Yi R‡b¨ hv hv jvM‡e Zv‡Z mgm¨vI nIqvi K\_v bq| hw` Zv‡Z K‡qK k eQi jv‡M ZeyI bq| gnvKvkhvb‡K ¯^qsm¤ú~Y© K‡i evbv‡bv ‡h‡Z cv‡i| hv wbR¯^ e¨e¯’vcbvq AwfhvÎx‡`i‡K K‡qK c«Rb¥ a‡i Avevmb w`‡Z m¶g n‡e| Avevi AwfhvÎx‡`i‡K åg‡Yi mgq Zxe« VvÊv cwi‡e‡k Rwg‡q ivLv ‡h‡Z cv‡i|3 mwZ¨ ej‡Z, ‡QvU GKwU hv‡b Aí wKQymsL¨K Kg©xmn j¶ j¶ wngvwqZ wbwl³ ‡Kvl cvVv‡bvB ‡ewk hyw³m½Z n‡e| Mš—‡e¨ ‡cŠuQv‡bvi ci ‡m¸‡jv ‡\_‡K Rb¥ ‡b‡e gvbyl| G‡Z K‡i bZyb M«‡n Zvr¶wYKfv‡e GK `j Awaevmx cvIqv hv‡e| wecyj cwigvY eq¯‹ Rb‡Mvôx‡K `xN© mgq a‡i cwien‡bi e¨e¯’vcbvi c«‡qvRb n‡e bv|

Av‡iKwU welq: Avgv‡`i‡K a‡i wb‡Z n‡”Q, GB `xN© mg‡q A‡bK wKQy nIqv m¤¢e| d‡j fwel¨‡Z emwZ Mvuov gvbyl¸‡jv ‡h ‡Pnviv-myiZ ev gvbwmKZvq ‡h gvby‡li g‡ZvB n‡e ‡mUv fveviI ‡Kv‡bv KviY ‡bB| hw` gvbyl‡K c«‡qvRb Abymv‡i e`‡j ‡bIqv ‡bIqv hvq, Zvn‡j c«wZwU Awfhv‡bB c«¯—vweZ bKkv Abymv‡i c«vYx evwb‡q ‡bIqv hvq| hv‡Z \_v‡K D‡Ï‡k¨i mv‡\_ m½wZc~Y© kixi I g‡bi mgš^q|

emwZ¯’vcbKvix‡`i‡K mvaviY msÁvi RxweZ c«vYxI n‡Z n‡e bv| GLbB gvby‡li g‡a¨ wmwjKb-wP‡ci gvB‡µvc«‡mmi ¯’vcb Kiv m¤¢e n‡”Q| GB c«hyw³ AviI DbœZ n‡j ‰Re I K…wÎg ‰e`¨ywZK hš¿vs‡ki wgk«Y n‡ZB cv‡i| hv‡Z K‡i kvixie…wËK Kv‡Ri cvkcvwk gw¯—®‹I wVKfv‡e KvR Ki‡e| ‡hgb ai“b, gvby‡li gw¯—‡®‹i R‡b¨ ‡evë-Ab ¯§…wZ ‰Zwi Kiv ‡h‡Z cv‡i| A‡bKUv Kw¤úDUv‡ii ‡hfv‡e AwZwi³ ‡g‡gvwi jvMv‡bv nq| D‡ëvfv‡e Avevi GgbI n‡Z cv‡i ‡h ‰Re c`v\_i« R‡b¨ hš¿vsk ‰Zwii ‡P‡q wnmve-wbKvk Kivi c«wZ Af¨¯— nIqv ‡ewk Kvh©Kix n‡e| Zvi gv‡b Kw¤úDUv‡ii hš¿vsk¸‡jv‡K ‰Re Dcv‡q weKwkZ Kiv hv‡e| wWwRUvj Kw¤úDUv‡ii e`‡j wbDivj ‡bU P‡j Avmvi m¤¢vebv AviI ‡ewk| GgbwK GLbB wWwRUvj Kw¤úDUv‡ii wbDivj ‡bU e¨envi Kiv n‡”Q| Gi gva¨‡g gvby‡li eyw×gËv‡K DÏxwcZ Kiv n‡”Q| c~e©vbygvb Kiv n‡”Q A\_©‰bwZK wewfbœ Kg©Kv‡Êi AvPiY| gw¯—‡®‹i wUm¨yi GKwU Ask wb‡q Zv w`‡q ïi“ ‡\_‡KB ‰Re wbDivj ‡bU evbv‡bvUvB nqZ AviI ‡ewk A\_©c~Y© n‡e| ‰Re I K…wÎg ‡bZIqv‡Ki« GKwU eÜb ‰Zwi n‡e LyeB hyw³m½Z| b¨v‡bvc«hyw³i Avwef©v‡ei mv‡\_ mv‡\_ RxweZ I g…Z, c«vK…wZK I K…wÎg, gw¯—®‹ I Kw¤úDUv‡ii cv\_©K¨ µ‡gB ‡QvU n‡q Avm‡e|

eZ©gv‡b Gme Abygvb ‰eÁvwbK KíKvwnwb‡ZB ïay cvIqv hvq| G¸‡jv‡K ‰eÁvwbK ev¯—‡e cwiYZ n‡Z cv‡i? Avi hvB ‡nvK, Avgiv ‡Kv‡bv wKQy Abygvb Ki‡Z cvwi e‡jB ‡h ‡mUv mwZ¨ n‡q hv‡e Ggb ‡Kv‡bv K\_v ‡bB| Z‡e c«vK…wZK c«wµqvi ‡¶‡Î Avgiv ‡hgb bxwZ c«‡qvM K‡iwQ ‡mUv Ki‡Z cvwi c«hyw³MZ c«wµqvi ‡¶‡ÎI| h‡\_ó ‡ewk mgq cvIqv ‡M‡j hv hv NU‡Z cv‡i Zvi meB NU‡e| hw` gvbyl ev Zv‡`i eskaiiv h‡\_ó Drmvnx \_v‡K (GUv nqZ A‡bK hw`-wKš‘i e¨vcvi), Zvn‡j c`v\_©we`¨vi m~Î Qvov Avi wKQyB c«hyw³‡K ‡VwK‡q ivL‡Z cvi‡e bv| GK c«R‡b¥i weÁvbx‡`i Rb¨ gvbe wR‡bvg c«Kí Kómva¨ GK KvR| wKš‘ kZ kZ, nvRvi nvRvi ev j¶ j¶ c«Rb¥ GB KvR Ki‡Z \_vK‡j KvRwU n‡q hv‡e Abvqv‡mB|

Avkvev`xB nIqv hvK| ai“b Avgiv ‡eu‡P hve| Avi Avgv‡`i c«hyw³i Dbœqb m‡e©v”P wkL‡i ‡h‡Z \_vK‡e| gnvwek¦ wb‡q M‡elYvi ‡¶‡Î Gi f~wgKv Kx n‡e? ai“b, D‡Ï‡k¨i mv‡\_ m½wZc~Y© eyw×gvb Rxe evbv‡bv m¤¢e n‡jv| Gi d‡j GLb ‡hme ‰ewi RvqMvq c«wZwbwa cvVv‡bv m¤¢e n‡”Q bv ‡mLv‡bI ‡mUv Kiv hv‡e| GB c«vYx¸‡jv gbyl¨-wbwg©Z c«hyw³iB dmj n‡jI Giv wb‡Riv wKš‘ gvbyl n‡e bv|

GB A™¢yZ c«vYx¸‡jvi fwel¨r wb‡q Avgv‡`i wK wPwš—Z nIqv DwPZ? gvby‡li e`‡j G ai‡bi `vbe P‡j Avm‡Z cv‡i fve‡jB A‡b‡Ki g‡a¨ weiw³ KvR K‡i| wU‡K \_vKvi Rb¨ wRbc«‡KŠk‡ji gva¨‡g wbwg©Z ‰Re ‡ive‡Ui Kv‡Q RvqMv ‡Q‡o w`‡Z n‡j nqZ ‡`IqvB DwPZ| ZeyI gvby‡li Aemvb hw` Avgv‡`i‡K nZvk K‡i, Zvn‡j Avgv‡`i wb‡R‡`i‡K c«kœ Kiv DwPZ Avgiv gvby‡li wVK ‡Kvb wRwbmwU msi¶Y Ki‡Z PvB| Aek¨B Avgv‡`i kvixwiK AvK…wZ bq| AvR ‡\_‡K 10 j¶ eQi c‡i Avgv‡`i eskai‡`i cv‡qi AvO&¸j bvI \_vK‡Z cv‡i ïb‡j wK Avgv‡`i Lvivc jvM‡e? ev cv ‡QvU n‡q ‡M‡j? wKsev gv\_v ev gw¯—®‹ eo n‡q ‡M‡j? Avgv‡`i kvixwiK AvK…wZ ‡Zv MZ K‡qK kZvãx‡Z A‡bK cv‡ë‡Q| GLbI wewfbœ ‡Mv‡Îi gvby‡li g‡a¨ e¨vcK ‰ewPZª¨ Av‡Q|

Avgvi g‡b nq, wKQy GKUv ej‡Z ej‡j ‡ewkifvM gvbyl gvbweK ‡PZbv‡K ¸i“Z¡ ‡`‡e| Avgv‡`i ms¯‹…wZ, g~j¨‡eva, ¯^Zš¿ gvbwmK MVb BZ¨vw`| Avgv‡`i ‰kwíK, ‰eÁvwbK I eyw×e…wËK AR©‡bi ‡¶‡Î GgbUvB ‡`Lv ‡M‡Q| GB wRwbm¸‡jv Aek¨B msi¶Y K‡i ivLvi g‡Zv| Avgiv Avgv‡`i eskai‡`i Kv‡Q gvbweKZv ‡i‡L hvIqv wbwðZ Ki‡Z cvi‡j kvixwiK AvK…wZ‡Z Kx G‡m hvq? me‡P‡q ¸i“Z¡c~Y© wRwbmUv ‡Zv AwR©Z n‡”QB|

gnvk~b¨gq Ny‡i ‡eov‡bv gvby‡li g‡Zv c«vYx ‰Zwi Kiv m¤¢e wK bv ‡mUv eomo Abygvb bv K‡i ejvi Dcvq ‡bB| Ab¨ wKQy bv n‡jI GUv n‡Z cv‡i ‡h gvbyl GZ eo Kv‡Ri Rb¨ c«‡qvRbxq DÏxcbvUyKy nvwi‡q ‡dj‡e| A\_ev A\_©‰bwZK, cwi‡ekMZ ev Ab¨ ‡Kv‡bv `~‡h©v‡Mi d‡j GB M«nwU‡K ‡Q‡o hvevi HKvwš—K B”Qv ev¯—evq‡bi Av‡MB Avgv‡`i g…Z¨y NU‡e| Avevi GI n‡Z cv‡i, c…w\_exi evB‡ii eyw×gvb c«vYxiv Avgv‡`i ‡P‡q GK avc GwM‡q ‡M‡Q| evm‡hvM¨ ‡ewki fvM M«nB nqZ Iiv `Lj K‡i ‡d‡j‡Q (Z‡e Aek¨B c…w\_ex‡K `Lj Ki‡Z cv‡iwb)| Z‡e cy‡iv gnvwe‡k¦ Qwo‡q c‡o c«hyw³i mvnv‡h¨ Zv wbqš¿Y Kivi KvRwU wK Avgv‡`i ‡Kv‡bv eskai Ki‡e bvwK ‡Kv‡bv wfbM«‡ni c«vYxiv Ki‡e ‡mUv ejv hv‡”Q bv| Avevi axiMwZ‡Z gnvwe‡k¦i webvk‡K Ggb DbœZ c«RvwZ Kxfv‡e ‡gvKv‡ejv Ki‡e ‡m c«kœI gv\_vq Avmv ¯^vfvweK|

mßg Aa¨v‡qB e‡jwQ, gnvwek¦ ¶qc«vß n‡e AZ¨š— axiMwZ‡Z| d‡j c…w\_exi eZ©gvb Ae¯’vi Ici wfwË K‡i eû `~‡ii fwel¨‡Zi c«hyw³ ‡Kgb n‡e ‡mUv Abygvb Kiv A\_©nxb| GK j¶ ‡KvwU eQi GKwU c«hyw³MZ mgv‡Ri K\_v ‡Zv wPš—v KivI KwVb| g‡b n‡Z cv‡i, Zviv ‡h‡Kv‡bv wKQy AR©b Ki‡Z cvi‡e| wKš‘ GKwU c«hyw³ hZB DbœZ ‡nvK, Zv‡K c`v\_©we`¨vi ‡gŠwjK m~Î¸‡jv gvb‡ZB n‡e| ‡hgb ai“b, Av‡cw¶KZv ZË¡ mwVK| ‡Kv‡bvwKQyB Av‡jvi ‡P‡q ‡ewk ‡e‡M ‡h‡Z cv‡i bv| d‡j j¶ ‡KvwU eQi a‡i ‡Póv Pvwj‡q ‡M‡jI Av‡jvi ‡e‡Mi GB evav cvi nIqv m¤¢e n‡e bv| AviI ¸iZ¡c~Y© K\_v n‡jv, fvj wKQy Ki‡Z ‡M‡jB wKQy bv wKQy kw³ e¨q nq| d‡j gnvwe‡k¦i gy³ kw³i Drm µ‡gB Lvwj n‡q hv‡”Q| hv c«hyw³ mgv‡Ri Rb¨ GK weivU mgm¨v| ‡m hZ DbœZ mf¨ZvB ‡nvK bv ‡Kb|

m‡e©v”P ‡k«Yxi eyw×gvb Rx‡ei ‡¶‡Î ‡gŠwjK c«vK…wZK bxwZ¸‡jv c«‡qvM K‡i Avgiv hvPvB Ki‡Z cvwi, gnvwe‡k¦i ¶‡qi d‡j `~i fwel¨‡Z c«vYx‡`i wU‡K \_vK‡Z mwZ¨Kv‡ii ‡gŠwjK ‡Kv‡bvB mgm¨v n‡e wK bv| GKwU Rxe‡K eyw×gvb n‡Z n‡j G‡K Aš—Z Z\_¨ c«wµqvKiY Ki‡Z cvi‡ZB n‡e| Gi R‡b¨ gnvwe‡k¦i ‡fŠZ Ae¯’v‡K ‡Kgb n‡Z n‡e Zv Rvbv `iKvi|

Z\_¨ c«wµqvKi‡Yi GKwU ‰ewkó¨ n‡”Q G‡Z kw³ LiP nq| G Kvi‡YB ‡h IqvW© c«‡mm‡i Avwg GB eBwU UvBc KiwQ ‡mwU c«avb ‰e`¨wZK mieiv‡ni mv‡\_ hy³ Av‡Q| c«wZ weU Z‡\_¨i R‡b¨ Kx cwigvY kw³ LiP n‡e ‡mUv wbfi« K‡i ZvcMZxq c«wµqvi Ici| c«‡mm‡ii cwi‡e‡ki ZvcgvÎvi KvQvKvwQ ZvcgvÎvq KvR Ki‡j LiP nq me‡P‡q Kg| gvby‡li gw¯—®‹ I ‡ewkifvM Kw¤úDUv‡ii Kg©`¶Zv LyeB Kg| Zvc AvKv‡i ‡ewi‡q hvq c«Pyi cwigvY evowZ kw³|

D`vniY¯^iƒc, ‡`‡ni Zv‡ci eo GKwU Ask gw¯—®‹B ‰Zwi K‡i| M‡j hvIqv ‡\_‡K evuPv‡Z A‡bK Kw¤úDUv‡iB kxZjxKiY e¨e¯’v ivL‡Z nq| GB Zvc AcP‡qi g~j KviY LyuR‡j Z\_¨ c«wµqvKi‡Yi ‡KŠkjUvB cvIqv hv‡e| wVK GB Kvi‡YB Avevi Z\_¨ nvwi‡qI hvq| ‡hgb ai“b GKwU Kw¤úqUvi w`‡q wnmve Kiv n‡jv 1 +2 = 3| Zvn‡j `yB weU Z\_¨ (1 I 2) mwi‡q GK weU Z\_¨ (3) cvIqv ‡Mj| wnmve ‡kl nIqvi c‡i Kw¤úDUvi Av‡Mi Z\_¨ ‡d‡j w`‡Z cv‡i| d‡j `yB we‡Ui e`‡j GK weU Z\_¨ \_vKj| mwZ¨ ej‡Z, Kw¤úDUv‡ii ‡g‡gvwii Pvc Kgv‡Z G ai‡bi evowZ Z\_¨ memgqB ‡d‡j w`‡Z nq| msÁvbymv‡iB gy‡Q ‡djvi GB c«wµqv A‡diZ‡hvM¨| Gi d‡j wKš‘ ‡e‡o hvq GbU«wc4| d‡j ‡evSv hv‡”Q, G‡Kev‡i ‡gŠwjK Kvi‡Y Z\_¨ msM«n I c«wµqvKi‡Yi Kvi‡Y Awbevh© I A‡diZ‡hvM¨ Dcv‡q we`¨gvb kw³ K‡g hv‡”Q| Avi evo‡Q gnvwe‡k¦i GbU«wc|

gnvwek¦ kxZj n‡Z n‡Z Zvcxq g…Z¨yi w`‡K GwM‡q ‡M‡j eyw×gvb Rxeiv Kx Kx Amyweavi m¤§yLxb n‡e Zv wb‡q wd«g¨vb WvBmb ‡f‡e‡Qb| ïay wPš—v Kivi R‡b¨I GB Rxe‡`i‡K GKwU wbw`©ó nv‡i kw³ LiP Ki‡Z nq| c«\_g Amyweav ‡nvj Rxe‡`i ZvcgvÎv cwi‡e‡ki ZvcgvÎvi ‡P‡q ‡ewk n‡Z n‡e| Zv bv n‡j AwZwi³ Zvc Zv‡`i kixi ‡\_‡K ‡ei n‡Z cvi‡e bv| wØZxq welqwU n‡jv, GKwU ‡fŠZ e¨e¯’v Kx nv‡i cwi‡e‡k kw³ weKxY© Ki‡e Zv c`v\_©we`¨vi m~Î ‡g‡b Pj‡Z eva¨| mn‡RB ‡evSv hv‡”Q, Rxeiv ‡h nv‡i AwZwi³ Zvc ‡\_‡K gy³ n‡e Zvi ‡P‡q ‡ewk nv‡i ‡m ai‡bi Zvc kix‡i ‰Zwi n‡j ‡ewk w`b ‡eu‡P \_vKv m¤¢e n‡e bv| d‡j Kx nv‡i Zvc LiP n‡e Zvi GKwU wbgœmxgv wba©vwiZ Av‡QB| d‡j GKwU Awbevh© c«‡qvRb n‡jv, kw³i gy³ GKwU Drm \_vK‡ZB n‡e| hv‡Z Zv‡ci GB c«evn Aweivg Pj‡Z cv‡i| WvBm‡bi g‡Z gnvwe‡k¦i `~i fwel¨‡Z G ai‡bi mKj DrmB wbt‡kl n‡q hv‡e| Zvi gv‡b mKj eyw×gvb RxeB GKmgq kw³i m¼‡Ui gy‡L co‡e|

GLb, eyw×gvb Rxeiv `yB Dcv‡q Avqy evov‡Z cv‡i| GKwU n‡jv, hZw`b m¤¢e ‡eu‡P \_vKv| Av‡iKwU n‡jv, wPš—v I AwfÁZv AR©‡bi nvi evov‡bv| WvBmb G‡¶‡Î GKwU ‡hŠw³K Abygvb K‡i‡Qb| GKwU Rx‡ei R‡b¨ mgq AwZevwnZ nIqvi wbR¯^ AwfÁZv H Rx‡ei Z\_¨ c«wµqvKi‡Yi nv‡ii Ici wbfi« K‡i| c«wµqv hZ `ª“Z Pj‡e, GKK mg‡q ZZ `ª“Z wPš—v I Abyf~wZ m¤úbœ n‡e| mgqI ZZ `ª“Z Pj‡e e‡j g‡b n‡e| ievU© ‡dviIqv‡Wi« W«vMb'm GM mv‡qÝ wdKk‡b GB Abygvb ‡ek imvZ¥Kfv‡e e¨envi Kiv n‡q‡Q| GLv‡b GK `j eyw×gvb Rx‡ei Mí ejv n‡q‡Q| Giv evm K‡i GKwU wbDU«b b¶‡Îi c…‡ô| Aw¯—Z¡&e wUwK‡q ivL‡Z Giv ivmvqwbK c«wµqvi e`‡j wbDK¬xq c«wµqvi Ici wbfi« K‡i| Giv Z\_¨ c«‡mm K‡i A‡bK `ª“Z| gvbyl GK ‡m‡K‡Û hv K‡i, Zviv ‡mB mg‡q eû eQ‡ii KvR K‡i ‡d‡j| gvby‡li mv‡\_ c«\_g mv¶v‡Zi mgq Zviv ‡ek Avw`g wQj| wKš‘ wgwb‡Ui g‡a¨ Zviv cwiw¯’wZ ey‡S ‡d‡j I gvbyl‡K civwRZ K‡i|

`~f©v‡M¨i e¨vcvi n‡jv, `~i fwel¨‡Z ‡eu‡P \_vKvi R‡b¨ GB ‡KŠkj M«nY Ki‡j Amyweav Av‡Q| Z\_¨ hZ `ª“Z c«‡mm n‡e, kw³ Li‡Pi nviI ZZ `ª“Z n‡e| kw³i ‡hvMvbI ZZ `ª“Z Lvwj n‡q| nqZ fve‡Qb, Gi d‡j Avgv‡`i eskaiiv ‡Zv Zvn‡j aŸsm n‡q hv‡e| ‡m Zv‡`i ‰`wnK AvK…wZ hvB ‡nvK bv ‡Kb| wKš‘ ‡mUv bvI n‡Z cv‡i| WvBmb ‡`wL‡q‡Qb, GKwU ‡KŠkj K‡i `y‡Uvi g‡a¨ mgš^q Kiv hv‡e| gnvwe‡k¦i ¶‡qi mv‡\_ fvimvg¨ i¶v Ki‡Z c«vYxiv Zv‡`i Kg©Kv‡Êi nvi Av‡¯— Av‡¯— Kwg‡q Avb‡e| ‡hgb ai“b, µ‡gB ‡ewk mg‡qi R‡b¨ Zviv kxZwb`«vq Ae¯’vb Ki‡e| c«wZwU kxZwb`«vi mgq Av‡Mi mwµq ‡gqv‡`i Kv‡Ri d‡j m…ó Zvc ‡ewi‡q hv‡e| Avi Rgv n‡e c«‡qvRbxq kw³| hv e¨envi Kiv hv‡e c‡ii mwµq ‡gqv‡`|

GB ‡KŠkj M«nY Kiv Rxe‡`i AwZevwnZ mgq mwZ¨Kvi mg‡qi ¶y`« ‡\_‡K ¶y`«Zi Ask n‡Z \_vK‡e| KviY G‡`i wbwl&µq Ae¯’v µ‡gB eo n‡Z \_vK‡e| wKš‘ Avwg A‡bK¶Y a‡iB ejwQ, wPiKvj GKwU `xN© mgq| d‡j wecixZgyLx `ywU ‡m«v‡Zi gv‡S Avgiv evuav| m¤ú` µ‡gB dywi‡q hv‡e| Avi mgq µ‡gB ‡e‡o Pj‡e Amx‡gi w`‡K| GB mxgv¸‡jv‡K mij Dcv‡q cix¶v K‡i WvBmb ‡`‡L‡Qb, ‡gvU m¤ú‡`i cwigvY mmxg n‡jI ‡gvU Av‡cw¶K mgq Amxg n‡Z cv‡i| wZwb AmvaviY GKwU Z\_¨ w`‡q‡Qb| eZ©gv‡b c…w\_ex‡Z hZ gvbyl Av‡Q GZ msL¨K Rxe 6×1030 Ryj kw³ w`‡qB Av¶wiK A‡\_© Abš—Kvj evuP‡Z cvi‡e| m~h© AvU NÈv R¡j‡jB GB cwigvY kw³ cvIqv hvq|

Z‡e mwZ¨Kv‡ii AgiZ¡ ‡c‡Z n‡j Amxg cwigvY Z\_¨ c«‡mm Ki‡Z cvi‡jB Pj‡e bv| GKwU Rx‡ei gw¯—‡®‹i Ae¯’vi msL¨v mmxg n‡j ‡m ïay mmxg msL¨K Avjv`v wPš—v Ki‡Z cvi‡e| wPiKvj ‡eu‡P \_vK‡Z n‡j GKB wPš—vB A‡bKevi Ki‡Z n‡e| G ai‡bi ‡eu‡P \_vKv‡K aŸsmc«vß GK c«RvwZi g‡ZvB A\_©nxb g‡b nq| GUv ‡\_‡K evuP‡Z PvB‡j H m¤cÖ`vq ev gnvc«vYxUv‡K µgk eo n‡Z \_vK‡Z n‡e| A‡bK `~‡ii fwel¨‡Z GUv Ki‡Z hvIqv A‡bK KwVb KvR n‡e| KviY e¯—y‡K ‡h MwZ‡Z gw¯—‡®‹i Ask evbv‡bv hv‡e Zvi ‡P‡q ‡ewk MwZ‡Z e¯—y ev®úxf~Z n‡q hv‡e| eyw×e…wËK Kg©Kv‡Êi cwiwa evwo‡q wb‡Z ‡ec‡ivqv I weP¶Y ‡Kv‡bv Rxe nqZ memgq nv‡Zi mvg‡b c‡o \_vKv `~j©f¨ gnvRvMwZK wbDwU«‡bv ‡\_‡K kw³ AvniY Ki‡e|

WvBm‡bi K\_vevZ©vi A‡bKvsk Ry‡oB ‡fZ‡i ‡fZ‡i a‡i ‡bIqv n‡q‡Q, GB mKj Rxe‡`i gvbwmK wPš—vi MwZ wWwRUvj Kw¤úDUv‡ii wnmv‡ei MwZi mgvb n‡q hv‡e| `~i fwel¨‡Zi Rxe‡`i fwel¨r wb‡q Kiv wewfbœ Abygv‡bI Avm‡j ZvB a‡i ‡bIqv nq| wWwRUvj Kw¤úDUvi Aek¨B mmxg Ae¯’vm¤úbœ GKwU ‡gwkb| d‡j Gi Kv‡Ri m¤¢ve¨ cwiwa mxwgZ| Z‡e A¨vbvjM Kw¤úDUvi bv‡g Ab¨ ai‡bi hš¿I Av‡Q| wWwRUvj Kw¤úDUv‡ii wKQy mxgve×Zv A¨vbvjM Kw¤úDUv‡i ‡bB| wWwRUvj Kw¤úDUvi ïay mmxg cwigvY Z\_¨ Rgv I c«‡mm Ki‡Z cv‡i| ai“b, A¨vbvjM Kw¤úDUv‡ii g‡Zv K‡i Z\_¨ Gb‡KvW Kiv n‡jv| ai“b ‡h Ro e¯—yi ‡Kv‡Yi Ae¯’v‡bi gva¨‡g ‡mUv Kiv n‡jv| G‡¶‡Î Kw¤úDUv‡ii aviY¶gZv‡K Amxg g‡b n‡e| d‡j, GKwU gnvc«vYx A¨vbvjM Kw¤úDUv‡ii g‡Zv K‡i KvR Ki‡Z cvi‡j GwU ïay AmxgmsL¨K wPš—vB Ki‡Z cvi‡e bv, nqZ AmxgmsL¨K Avjv`v wPš—vI Ki‡Z cvi‡e|

wKš‘ mvwe©Kfv‡e gnvwek¦ A¨vbvjM bvwK wWwRUvj Kw¤úDUv‡ii g‡Zv ‡mUv Avgiv Rvwb bv| ‡Kvqv›Uvg wdwR· ej‡Q, gnvwek¦ wb‡RI ‡Kvqv›UvwqZ ev wQbœvwqZ| gv‡b As‡k As‡k wef³| A\_©vr, GwU wbiwew”Qbœ ZviZ‡g¨i e`‡j wew”Qbœ wew”Qb As‡k me¸‡jv ‰ewkó¨ aviY K‡i Av‡Q| Z‡e GwU ïayB GKwU aviYv| Avgiv gvbwmK I Ro gw¯—‡®‹i ga¨Kvi m¤úK©I mwVKfv‡e eywS bv| Avgiv ‡Zv GLv‡b ‡Kvqv›Uvg wdwR‡·i aviYv wb‡q K\_v ejjvg| Zvi mv‡\_ wPš—v I AwfÁZv¸‡jvi m¤úK© bvI ‡Zv \_vK‡Z cv‡i|

Z‡e gb ‡hgbB ‡nvK bv ‡Kb, `~i fwel¨‡Zi Rxeiv ‡h ‡kl ch©š— R¡vjvwbi m¼‡U co‡e Zv‡Z ‡Kv‡bv m‡›`n ‡bB| gnvwe‡k¦i me kw³ GKw`b wbt‡kl n‡eB| ZeyI GUv‡K ‡gvKv‡ejv K‡i Zviv GK ai‡bi AgiZ¡ jvf Ki‡Z cv‡i| WvBm‡bi Zy‡j aiv wP‡Î Rxe‡`i c«‡qvR‡bi c«wZ gnvwe‡k¦i ‡Kv‡bv bRiB \_vK‡e bv| Zv‡`i Kg©KvÊI gnvwek¦‡K µgvMZ Kg c«fvweZ Ki‡Z \_vK‡e| Acwimxg mgq a‡i Rxeiv \_vK‡e wbwl&µq| ¯§…wZ \_vK‡e| wKš‘ ¯§…wZ‡Z bZyb wKQy hy³ n‡e bv| gyg~l©y gnvwe‡k¦i w¯’i AÜKv‡i DV‡e bv ‡Kv‡bv Av‡jvob| GKUy eyw× LiP K‡i Iiv nqZ GLbI AmxgmsL¨K wPš—v Ki‡Z cvi‡e| AmxgmsL¨K AwfÁZvi mva wb‡Z cvi‡e| Avi Kx B ev Avkv Kivi Av‡Q?

eZ©gvb mg‡q `xN© w`b a‡i P‡j Avmv Ab¨Zg fyj aviYv n‡jv gnvRvMwZK Zvcxq g…Z¨y| ZvcMwZwe`¨vi wØZxq m~Î Abymv‡i AvcvZ`…wó‡Z gnvwek¦ GK mgq Gi ‰ewkó¨¸‡jv nvwi‡q ‡dj‡e| iv‡mj I AviI ‡KD ‡KD GB aviYv‡K e¨envi K‡i bvw¯—KZv, bvw¯—ev` (nihilism) I nZvkvi `k©b c«gv‡Y e¨¯— n‡q‡Qb| eZ©gv‡b Avgv‡`i Km‡gvjwRi Ávb AviI DbœZ n‡q‡Q| GLb Avgiv GKUy wfbœ wPÎ ‡`LwQ| gnvwek¦ nqZ aŸsm n‡q hv‡”Q| wKš‘ Gi Dcv`vb ‡kl n‡q hv‡”Q bv| n¨vu, ZvcMwZwe`¨vi wØZxq m~‡Îi c«‡qvM NU‡Q| wKš‘ Gi Kvi‡Y ms¯‹…wZi g…Z¨y NU‡e ejvi Dcvq ‡bB|

Avm‡j WvBmb ‡hgb e‡j‡Qb, ev¯—‡e cwiw¯’wZ GZUv Lvivc bvI n‡Z cv‡i| GZ¶Y ch©š— Avwg a‡i wb‡qwQ, c«mvwiZ I kxZj n‡Z n‡ZI gnvwek¦ Kg-‡ewk mylg (GKB iKg) \_v‡K| wKš‘ GUv fyjI n‡Z cv‡i| gnvKl© eû iKg Aw¯’wZkxjZvi Rb¥ ‡`q| eZ©gv‡b eo ‡¯‹‡j wPš—v Ki‡j Avgiv gnvwek¦‡K mylg ev me w`‡K GKBiKg ‡`wL| `~i fwel¨‡Z nqZ ‡mwU AviI RwUj ‡Kv‡bv`x‡K ‡gvo wb‡Z cv‡i| ‡hgb ai“b, Avjv`v w`‡K c«mvi‡Yi nvi mvgvb¨ ZviZ‡g¨i dj eo n‡q ‡`Lv w`‡Z cv‡i| eo eo e­¨vK‡nvjiv wb‡R‡`i gnvKl©xq AvKl©‡Yi gva¨‡g gnvRvMwZK c«mvi‡Yi c«fve D‡c¶v K‡i GKxf~Z n‡q ‡h‡Z cv‡i| GB Ae¯’vi Kvi‡Y GKwU `vi“Y jovB evua‡e| g‡b K‡i ‡`Lyb, GKwU e­¨vK‡nvj hZ ‡QvU n‡e, Gi ZvcgvÎv ZZ ‡ewk| GwU ev®úxf~ZI n‡q hvq ZZ ZvovZvwo| `y‡Uv e­¨vK‡nvj wgwjZ n‡j mgwš^Z e­¨vK‡nvjwU AvKv‡i eo n‡e| Zvi gv‡b Gi ZvcgvÎv n‡e Kg| d‡j Gi ev®úxfeb eo GKwU mgm¨vi gy‡L co‡e| Zvn‡j, `~i fwel¨‡Zi gnvwek¦ m¤ú‡K© g~j c«kœ n‡jv, e­¨vK‡nvj‡`i GKxfeb Zv‡`i e®úxfeb ‡VKv‡Z h‡\_ó f~wgKv ivL‡Z cvi‡e wK bv| hw` cv‡i, Zvn‡j memgqB wKQy e­¨vK‡nvj nwKs wewKi‡Yi gva¨‡g R¡vjvwb mieivn Ki‡Z cvi‡e| DbœZ c«hyw³i ‡Kv‡bv RvwZ ‡mB R¡vjvwb e¨envi K‡i nqZ kxZwb`«vi c«‡qvRb ‡\_‡K gyw³ cv‡e| c`v\_©we` Wb ‡cBR I i‍¨vÛvj g¨vKwKi wnmve Abymv‡i c«mviY I m‡¼vP‡bi c«fve Dwbk-wek n‡e| gnvwe‡k¦i c«mviY nvi Kx nv‡i Kg‡e ‡mUvi Ici GB jovB‡qi djvdj Lye ‡ewk wbfi« Ki‡Q| ‡Kv‡bv ‡Kv‡bv bgybv Abymv‡i e­¨vK‡nvj‡`i GKxfebB Rqx nqB|

WvBm‡bi weei‡Y AviI GKwU welqI gv\_vq ivLv nqwb| GgbI ‡Zv n‡Z cv‡i ‡h wb‡R‡`i Avqy evov‡bv Avgv‡`i eskaiiv gnvwe‡k¦i eo ‡¯‹‡ji KvVv‡gv cv‡ë ‡djvi ‡Póv Ki‡Z cv‡i| ‡R¨vwZc©`v\_©we` Rb e¨v‡iv I dª¨vsK wUcjvi Ggb wKQy Dcvq wb‡q ‡f‡e‡Qb| DbœZ c«hyw³m¤úbœ ‡Kv‡bv m¤cÖ`vq nqZ wb‡R‡`i R‡b¨ AbyK~j ‡Kv‡bv gnvKl©xq web¨vm ‰Zwi Ki‡Z b¶‡Îi PjvP‡j mvgvb¨ cwieZ©b NUv‡Z cv‡i| ‡hgb ai“b, wbDK¬xq A¯¿ e¨envi K‡i M«nvYyi K¶c\_ cv‡ë ‡djv hv‡e| Gi gva¨‡g GwU ‡Kv‡bv M«‡ni gnvKl©xq kw³ AR©b K‡i m~‡h© wM‡q av°v jvMv‡Z cvi‡e| GB av°vi d‡j Qvqvc‡\_ m~‡hi« K¶c\_ mvgvb¨ cv‡ë hv‡e| GB c«fve ‡QvU| wKš‘ ax‡i ax‡i Gi djvdj j¶¨Yxq n‡q IV‡e| m~h© hZ `~‡i mi‡e, ZZB `ª“Z `~‡i mi‡Z \_vK‡e| eû Av‡jvKe‡li« g‡Zv `~i‡Z¡ GB ¯’vbP¨ywZi d‡j m~h© Ab¨ ‡Kv‡bv b¶‡Îi KvQvKvwQ P‡j ‡M‡j eo NUbv ‡`Lv ‡h‡Z cv‡i| nvjKv GKwU av°v ‡\_‡K nqZ Qvqvc‡\_ m~‡hi« MwZc‡\_ P‡j Avm‡e Avg~j cwieZ©b| A‡bK¸‡jv b¶‡Îi MwZc\_ cvëv‡j bvbvb iK‡gi gnvRvMwZK e¯—y ‰Zwi Kiv hv‡e| e¨envi Kiv hv‡e RvwZi Kj¨v‡Y| Avi djvdj µ‡gB eo n‡q hvq e‡j Gi gva¨‡g GLv‡b-‡mLv‡b GK-AvaUy cwieZ©b K‡i K‡i ‡h‡Kv‡bv AvKv‡i e¨e¯’v‡KB wbqš¿Y Kiv hv‡e| h‡\_l `xN© mgq ‡c‡j Avgv‡`i eskaiiv wb‡R‡`i R‡b¨ c«Pyi mgq nv‡Z cv‡e| cy‡iv Qvqvc\_I Gfv‡e `L‡j Avbv ‡h‡Z cv‡i|

eo AvKv‡ii GB gnvRvMwZK Kjv‡KŠkj¸‡jv‡K c«vK…wZK I ‰`e NUbvi mv‡\_ jovB Ki‡Z n‡e| mßg Aa¨v‡qB ejv n‡q‡Q, b¶Î I Qvqvc\_iv gnvKl©xq eÜ‡b Ave× ¸”Q ‡\_‡K wQU‡K co‡Z \_vK‡e| e¨v‡iv I wUcjvi ‡`‡L‡Qb, M«nvYy‡K wbqš¿‡Yi gva¨‡g GKwU Qvqvc\_‡K cybwe©b¨vm Ki‡Z 1022 eQi mgq jvM‡e| wKš‘ c«vK…wZK `~N©Ubv 1019 eQ‡ii g‡a¨B N‡U| Zvi gv‡b ‡`Lv hv‡”Q, jovB‡qi dj P‡j hv‡”Q c«K…wZi c‡¶| Ab¨ w`‡K, Avgv‡`i eskaiiv nqZ M«nvYyi ‡P‡q eo AvKv‡ii wRwbm‡KI wbqš¿Y Ki‡Z cvi‡e| GQvovI GB c«wµqv¸‡jv e¯—y¸‡jvi K¶c‡\_i ‡e‡Mi IciI wbfi« K‡i| Avgiv cy‡iv Qvqvc\_ wb‡q fve‡j ‡`Le, gnvwe‡k¦i c«mvi‡Yi mv‡\_ mv‡\_ GB ‡eM¸‡jv K‡g Av‡m| d‡j G¸‡jv‡K K…wÎgfv‡e wbqš¿Y Ki‡ZI mgq ‡ewk ‡j‡M hv‡e| Z‡e `y‡Uv c«fve GKB nv‡i Kg‡e bv| ‡`‡L g‡b n‡”Q, mg‡qi mv‡\_ mv‡\_ c«vK…wZK `~N©Ubvi nvi gnvwek¦‡K cywbwe©b¨vm Kivi nv‡ii ‡cQ‡b c‡o hv‡e| G‡Z K‡i `vi“Y GKwU m¤¢vebv ‰Zwi n‡”Q| µ‡gB m¤ú` dywi‡q ‡h‡Z \_vKv gnvwe‡k¦i Ici eyw×gvb Rxe‡`i wbqš¿YI µ‡gB evo‡Z \_vK‡e| GKUv mgq cy‡iv c«K…wZ P‡j Avm‡e c«hyw³i AvIZvq| c«vK…wZK Avi K…wÎg wRwb‡mi g‡a¨ cv\_©K¨B Avi \_vK‡e bv|

WvBm‡bi we‡k­l‡Yi Av‡iKwU eo Abygvb n‡jv, wPš—v Ki‡Z ‡M‡j kw³ LiP n‡eB| gvby‡li wPš—b c«wµqvi ‡¶‡Î e¨vcviUv mwZ¨| K‡qKw`b AvM ch©š—I a‡i ‡bIqv nZ, ‡h‡Kv‡bv iKg Z\_¨ c«‡mm Ki‡Z ‡M‡jB GKwU b¨~bZg cwigvY ZvcMZxq g~j¨ w`‡ZB nq| we¯§‡qi e¨vcvi n‡jv, GUv memgq mZ¨ bq| Kw¤úDUvi weÁvbx Pvj©m ‡e‡bU I ‡ivjd i‍¨vb‡WŠi ‡`wL‡q‡Qb, bxwZMZfv‡e c«Z¨vMvgx (wecixZ w`‡KI KvR Ki‡Z m¶g) wnmveI m¤¢e| Gi A\_© n‡jv, wKQy wKQy ‡fŠZ e¨e¯’v AcPq QvovI Z\_¨ c«‡mm Ki‡Z cv‡i (welqwU GLbI ev¯—‡e Kiv m¤¢e nqwb)| Ggb GKwU wm‡÷‡gi K\_v wPš—v Kiv ‡h‡Z cv‡i, ‡hwU ‡Kv‡bv ai‡bi we`¨yr ms‡hv‡Mi c«‡qvRb QvovB AmxgmsL¨K wPš—v m¤úbœ Ki‡Z cvi‡e| GUv wVK ‡evSv hv‡”Q bv ‡h G ai‡bi GKwU wm‡÷g wK GKB mv‡\_ Z\_¨ msM«n I c«‡mm Ki‡Z cvi‡e wK bv| KviY cwi‡ek ‡\_‡K ‡Kv‡bv Ak~b¨ Z\_¨ wb‡Z ‡M‡j ‡Kv‡bv bv ‡Kv‡bv fv‡e kw³ AcPq n‡Z ‡`Lv hvqB| KviY ‡Mvj‡g‡j kã ‡\_‡K ‡ei K‡i wb‡Z nq mwVK m‡¼Z| d‡j evB‡ii RMZ m¤ú‡K© GB mij Rx‡ei ‡Kv‡bv aviYv \_vK‡e bv| Z‡e AZx‡Zi gnvwe‡k¦i K\_v Zv‡`i g‡b \_vK‡e| ‡mB Rxe Avevi ¯^cœI ‡`L‡Z cvi‡e nqZ|

GK kZvãxi ‡ewk mgq a‡i weÁvbxiv gnvwe‡k¦i g…Z¨y c«wµqv wb‡q wbweofv‡e KvR Ki‡Qb| GbU«wci gva¨‡g m…ó AcP‡qi gva¨‡g Avgv‡`i evm¯’vb gnvwek¦ ‡h wbw`©ó nv‡i ¶q n‡q hv‡”Q ‡mwU weÁvb gn‡ji GKwU mvaviY wek¦vm| wKš‘ GB wek¦vm KZUv c«wZwôZ? Avwg wK wbwðZ K‡i ej‡Z cvwi me ‡fŠZ c«wµqv Awbevh©fv‡e wek…•Ljv I ¶‡qi Rb¥ ‡`q?

Rxewe`¨v Kx e‡j? ‡h ‡Rviv‡jvfv‡e wKQy RxeweÁvbx WviDBbxq weeZ©b‡K mg\_©b K‡ib ‡mLvb ‡\_‡K wKQy m~Î cvIqv hvq| Avgvi g‡b nq, ‡fŠZ e‡ji gva¨‡g cwiPvwjZ ‡h c«wµqvwU ‡gŠwjKfv‡e my¯úófv‡e aŸsmvZ¥K nIqvi K\_v ‡mwU MVbg~jK nIqvi Kvi‡Y A¯^w¯—‡eva Kivi Kvi‡YB Zviv GB g‡Z wek¦vmx n‡q‡Qb| m¤¢eZ c…w\_ex‡Z c«v‡Yi m~Pbv N‡U‡Q Avw`g AvVv‡jv Kv`v ‡\_‡K| eZ©gvb c«vYxRMr wekvj I RwUj ev¯—yms¯—v‡bi Ask| GKwU RwUj I AZ¨š— ‰ewP‡Zª¨ ficyi GK wekvj Rv‡j AYyRxeiv cvi¯úwiK wµqv-c«wZwµqv Ki‡Q| RxeweÁvbxiv Aek¨ weeZ©‡bi wbqgZvwš¿K AM«MwZi c‡¶i ‡h‡Kv‡bv c«gvY‡K A¯^xKvi K‡ib| nqZ ‡mUv K‡ib Hk¦wiK D‡Ïk¨ c«Kvk cvIqvi f‡q| Z‡e weÁvbx I mvaviY gvbyl mevB fvj K‡iB Rv‡bb, c…w\_ex‡Z c«v‡Yi D™¢‡ei ci ‡\_‡K Kg-‡ewk GKB w`K eivei wKQy GKUvi DbœwZ N‡U‡Q| ‡mB DbœwZ‡K my¯úófv‡e wPwýZ KivB n‡jv mgm¨vi KvR| wVK ‡Kvb wRwbmwU DbœZ n‡q‡Q|

wU‡K \_vKv m¤úwK©Z GZ¶‡Yi Av‡jvPbvq Z\_¨ (ev k…•Ljv) I GbU«wci g‡a¨ ¸i“Z¡ ‡`Iqv n‡q‡Q| ‡`Lv ‡M‡Q, GbU«wcB memgq Rqx nq| wKš‘ Z\_¨B wK ‡mB wRwbm ‡hUv wb‡q Avgv‡`i wPwš—Z nIqv DwPZ? Avi hvB ‡nvK, m¤¢ve¨ meiKg wPš—v wb‡q wbqgZvwš¿Kfv‡e KvR Kiv ‡dvbeyK covi g‡ZvB ‡ivgvÂKi KvR| AwfÁZvi gvbB n‡jv ¸i“Z¡c~Y© welq| AviI mvwe©Kfv‡e ej‡j msM…nxZ I e¨eüZ Z‡\_¨i gvb|

Avgiv hZ `~i Rvwb, Kg-‡ewk ‰ewkó¨nxb Ae¯’vq gnvwe‡k¦i Rb¥ n‡q‡Q| mg‡qi mv‡\_ mv‡\_ G‡m‡Q mg…w× I ‡fŠZ e¨e¯’vi ‰ewPZª¨| Zvi gv‡b gnvwe‡k¦i BwZnvm Avm‡j msMwVZ RwUjZv ‰Zwii BwZnvm| ï‡b G‡K c¨vivW· g‡b nq| Av‡jvPbvi ïi“‡ZB e‡jwQjvg, ZvcMwZwe`¨vi wØZxq m~Î Abymv‡i gnvwe‡k¦i g…Z¨y n‡”Q| GwU c«v\_wgK mg‡qi wbgœ GbU«wci Ae¯’v ‡\_‡K m‡e©v”P GbU«wci P~ovš— Ae¯’vi w`‡K Ac«wZ‡iva¨ MwZ‡Z GwM‡q hv‡”Q| g…Z¨y n‡”Q m¤¢vebv¸‡jvi| Zvn‡j cwiw¯’wZ fvj n‡”Q bvwK Lvivc n‡”Q?

Avm‡j wKš‘ ‡Kv‡bv c¨vivW· ‡bB| KviY msMwVZ RwUjZv GbU«wc ‡\_‡K wfbœ wRwbm| GbU«wc bv wek…•Ljv n‡jv FYvZ¥K Z\_¨ ev k…•Ljv| Avcwb hZ ‡ewk Z\_¨ e¨envi Ki‡eb, gv‡b hZ ‡ewk web¨vm ‰Zwi Ki‡eb, ZZ ‡ewk GbU«wc ‰Zwi n‡q hv‡e| GK RvqMvi k…•Ljv Ab¨ RvqMvi wek…•Ljv evwo‡q ‡`q| wØZxq m~ÎUv GgbB| GbU«wc memgq Rqx nq| Z‡e msMwVZ nIqv I RwUjZv ej‡Z memgq web¨vm Avi Z\_¨‡KB ‡evSvq bv| G¸‡jv n‡jv wbw`©ó ai‡bi web¨vm I Z\_¨| ‡hgb ai“b, GKwU e¨vK‡Uwiqv I GKwU ùwU‡Ki g‡a¨ ¸i“Z¡c~Y© cv\_©K¨ Avgiv eyS‡Z cvwi| `y‡UvB web¨¯— \_v‡K| Z‡e web¨¯— \_v‡K wfbœ Dcv‡q| GKwU ùwU‡Ki Rvdwi‡Z \_v‡K k…•Ljve× mylgZv| `vi“Y my›`i n‡jI wKš‘ wVKB weiw³Ki| Ab¨ w`‡K wKš‘ m¤ú~Yi«~‡c msMwVZ GKwU e¨vK‡Uwiqv `vi“Y AvKl©Yxq|

g‡b n‡e GB welq¸‡jv e¨w³ ‡\_‡K e¨w³‡Z Avjv`v n‡e| Z‡e MwY‡Zi gva¨‡g G¸‡jv‡K k³ wfwË ‡`Iqv hvq| mv¤cÖwZK eQi¸‡jv‡Z M‡elYvi bZyb GKwU kvLvi D™¢e N‡U‡Q| msMwVZ RwUjZvi g‡Zv aviYv¸‡jv‡K msL¨vi gva¨‡g c«Kvk KivB Gi D‡Ïk¨| GwU msMwVZ nIqvi mvaviY bxwZgvjvI c«wZwôZ Ki‡Z Pvq| ‡m¸‡jv‡K ¯’vb K‡i w`‡Z Pvq c`v\_©weÁv‡bi c«PwjZ wbq‡gi cv‡k| GB kvLvwU GLbI G‡Kev‡i c«v\_wgK Ae¯’vq Av‡Q| wKš‘ web¨vm I wek…•Ljv m¤ú‡K© c«\_vMZ A‡bK Abygvb‡KB GwU ûgwKi gy‡L ‡d‡j w`‡”Q|

Avgvi `¨ KmwgK R¨vKcU eB‡q Avwg e‡jwQ, gnvwe‡k¦ nqZ ZvcMwZwe`¨vi wØZxq m~‡Îi cvkvcvwk GK ai‡bi ÒRwUjZvi ea©bkxj m~ÎÓKvR Ki‡Q| GB `yB m~‡Îi g‡a¨ ‡Kv‡bv we‡iva ‡bB| ev¯—‡e GKwU ‡fŠZ e¨e¯’vi MVbMZ RwUjZv evo‡j GbU«wc ev‡o| ‡hgb, Rx‡ei weeZ©‡bi d‡j bZyb I AviI ‡ewk RwUj c«vYxi D™¢e N‡U| Z‡e Zvi Av‡M wKš‘ msNwUZ nq aŸsmvZ¥K ‡fŠZ I Rxe‰eÁvwbK wewfbœ c«wµqv (‡hgb mwVKfv‡e Awf‡hvwRZ n‡Z bv cviv wgDU¨v›U‡`i5 AKvj g…Z¨y)| GgbwK ZylvidjK ‰Zwii mgqI Ac«‡qvRbxq Zvc ‰Zwi nq| Avi Gfv‡eB ‡e‡o P‡j gnvwe‡k¦i GbU«wc| Z‡e Av‡MB e¨vL¨v K‡iwQ, memgq ‡h ‡Kv‡bv wKQy msMwVZ n‡jB GbU«wc evo‡e Zv bq| KviY msMwVZ nIqv GbU«wci wecixZ bq|

Avwg AZ¨š— Lywk ‡h AviI A‡bK M‡elK GKB wm×v‡š— G‡m‡Qb| RwUjZvi ÒwØZxq m~ÎÓ‡K c«wZwôZ Kivi GKwU ‡PóvI Pj‡Q| Gi mv‡\_ ZvcMwZwe`¨vi wØZxq m~‡Îi ‡Kv‡bv we‡iva ‡bB| Z‡e RwUjZvi m~ÎwU gnvRvMwZK cwieZ©b m¤ú‡K© wfbœ K\_v ej‡Q| GwU ej‡Q, g~jZ ‰ewkó¨nxb Ae¯’v ‡\_‡K gnvwek¦ ax‡i ax‡i AviI we¯—vwiZ RwUj Ae¯’vi w`‡K GwM‡q hv‡e (GK A‡\_© Av‡M Dwj­wLZ M‡elYv Abymv‡i ‡mwU AviI myKwVb n‡e)|

gnvwe‡k¦i ‡kl Ae¯’vi K\_v wPš—v Ki‡j RwUjZvi e…w× welqK m~‡Îi ¸i“Z¡ A‡bK ‡ewk| msMwVZ RwUjZv GbU«wci wecixZ bv n‡j FYvZ¥K GbU«wci ¯^íZvi Kvi‡Y RwUjZvi mxgv evavM«¯— nIqvi K\_v bq| RwUjZv evo‡j ‡h GbU«wc ev‡o, ‡mUv nqZ wbZvš—B NUbvµ‡g N‡U ‡M‡Q| GUv nqZ web¨v¯— nIqv ev Z\_¨ c«‡mm Kivi ‡¶‡Î ‡hgb N‡U ‡Zgb ‡gŠwjK ‡Kv‡bv wbqg bq| GUv mZ¨ n‡q \_vK‡j Avgv‡`i eskaiiv nqZ dywi‡q Avm‡Z \_vKv m¤ú‡`i AcPq QvovB AviI ‡ewk msMwVZ RwUj Ae¯’v AR©b Ki‡Z cvi‡e| nqZ Zviv Zv‡`i B‡”Qg‡Zv Z\_¨ c«‡mm Ki‡Z cvi‡e bv| wKš‘ Zv‡`i gvbwmK I kvixwiK Kg©Kv‡Êi m¶gZvi mg…w×i AR©‡b ‡Kv‡bv wewawb‡la \_vK‡e bv|

GB Aa¨vq I me©‡kl Aa¨v‡q Avwg gnvwe‡k¦i MwZ axi n‡q hvIqvi GKwU wPÎ Zy‡j aivi ‡Póv K‡iwQ| Z‡e MwZ axi n‡q ‡M‡jI nqZ KL‡bvB MwZ \_vg‡e bv| AviI e‡jwQ mv‡qÝ wdKk‡bi A™¢yZ c«vYx‡`i mvgvb¨ DcKiY w`‡q ‡eu‡P \_vKvi ‡Póvi Mí| ‡hLv‡b wPiKvj Zv‡`i‡K gy‡LvgywL n‡Z nq c«wZK~jZvi| ZvcMwZwe`¨vi wbg©g wØZxq m~Î wei“‡× Zv‡`i‡K wb‡R‡`i gw¯—‡®‹i m…RbkxjZv c«`k©b Ki‡Z n‡e| wU‡K \_vKvi Rb¨ Zv‡`i‡K Avc«vY ‡Póv Pvjv‡Z n‡e| ‡m c«‡Póv ‡h e¨\_© n‡eB GgbwU ejvi ‡Rv ‡bB| Zv‡`i G Ae¯’vi K\_v ‡f‡e ‡Kv‡bv ‡Kv‡bv cvVK nqZ Avb›` cv‡”Qb| ‡KDev Avevi welY&YI n‡”Qb| Avgvi wb‡Ri c«wZwµqvUv wgk«|

Z‡e mewKQyB Abygvb Kiv n‡q‡Q GUv a‡i wb‡q ‡h gnvwek¦ c«mvwiZ n‡ZB \_vK‡e| Avgiv ‡`‡LwQ, GUv Avm‡j wbQKB gnvwe‡k¦i A‡bK¸‡jv m¤¢ve¨ cwiYwZi g‡a¨ GKwU| c«mviY h‡\_ó `ª“Z nv‡i K‡g ‡M‡j GKw`b nqZ eÜB n‡q hv‡e| ïi“ n‡Z cv‡i m‡¼vPb| Avi NU‡e GK gnvm‡¼vPb| ‡m‡¶‡Î Avgv‡`i wU‡K \_vKvi m¤¢vebv ‡Kgb?

Abyev`‡Ki ‡bvU

1| eBwU 1990 Gi `k‡K ‡jLv n‡qwQj| Z‡e Av‡jvP¨ e³e¨ GLbI mZ¨|

2| weeZ©b wb‡q weZK© m¤ú‡K© cwiwkó As‡k ms‡¶‡c Av‡jvPbv Kiv n‡q‡Q|

3| A‡bKUv mvc ev e¨vO‡qi kxZwb`«vi g‡Zv| G‡Z K‡i ‡eu‡P \_vKvi R‡b¨ wbqwgZ Lvevi M«n‡Yi c‡qvRb nq bv| mwÂZ Pwe© ‡\_‡K c«‡qvRbxq cywó cvIqv hvq| G mgq ür¯ú›`b I wecv‡Ki nvi K‡g hvq|

4| c`v\_©we`¨vq GbU«wc ej‡Z ‡evSvq kw³ iƒcvš—‡ii A¶gZv| Ab¨ A‡\_© G‡jv‡g‡jv Ae¯’vi GKwU cwigvc| ‡hgb ‡Kv‡bv Zv‡K A‡bK eB Qwo‡q wQwU‡q \_vK‡j ejv hv‡e ¸wQ‡q ivLv ‡Kv‡bv Zv‡Ki ‡P‡q Gi GbU«wc ‡ewk| G‡jv‡g‡jv eB¸‡jv ‡MvQv‡bv n‡j Zv‡K GbU«wc Kg‡e| wKš‘ mvgwM«Kfv‡e gnvwe‡k¦i GbU«wc KLbI K‡g bv| KviY, H i“g ‡MvQv‡Z ‡M‡j gvbyl ev hš¿ ‡h KvR Ki‡e Zv‡Z mvgwM«Kfv‡e GbU«wc evo‡eB| d‡j wKQy kw³ AcPq n‡eB| wKQy kw³ Aiƒcvš—i‡hvM¨ n‡q hv‡eB| Avi Bbdi‡gkb w\_Iwi‡Z GbU«wc ej‡Z ‡evSvq GKwU NUbv‡K c«Kvk Ki‡Z M‡o ‡h cwigvY weU Z\_¨ c«‡qvRb| Zey `y‡Uv Avm‡jB GKB aviYvi wfbœ c«Kvk|

5| wWGbG Gi wR‡bvg wmKy‡qÝ cv‡ë hvIqvi gva¨‡g m…ó bZyb Rxe‡K wgDU¨v›U e‡j|

beg Aa¨vq

`ª“Z MwZi Rxeb

wPiKvj ch©š— ‡eu‡P \_vKvi R‡b¨ gvbyl ev Gwj‡qb‡`i m…RbkxjZv KL‡bvB h‡\_óv n‡e bv, hw` bv ÒwPiKvjÓ e‡j wKQy GKUv \_v‡K| gnvwek¦ GKwU wbw`©ó ch©š—B hw` wU‡K \_v‡K, Zvn‡j ‡Zv A¨vigv‡MWb Gov‡bvi ‡Kv‡bv Dcvq ‡bB| lô Aav‡q¨ Avwg ‡`wL‡qwQ, gnvwe‡k¦i P~ovš— cwiYwZ Kxfv‡e Gi ‡gvU f‡ii Ici wbfi« K‡i| gnvwek¦ nq wPiKvj c«mvwiZ n‡e| A\_ev GKmgq Avevi ¸wU‡q ‡h‡Z \_vK‡e| ch©‡e¶Y ej‡Q, gnvwe‡k¦i fi GB `yB m¼U mxgviB Lye KvQvKvwQ| GKmgq gnvwek¦ Avevi ¸wU‡qB ‡h‡Z ïi“ Ki‡j Av‡Mi Aa¨v‡q Avgiv eyw×gvb Rx‡ei ‡h AwfÁZvi K\_v e‡jwQ ‡mUv GK`g wfbœ iKg n‡q hv‡e|

gnvRvMwZK m‡¼vP‡bi c«v\_wgK Ae¯’vq f‡qi ‡Zgb wKQyB ‡bB| GKwU ej ‡hgb Gi MwZc‡\_i P~ovq I‡V, ‡Zgwb gnvwek¦I Lye ax‡i ‡fZ‡ii w`‡K cZb ïi“ Ki‡e| AvcvZZ Avgiv a‡i wbw”Q, gnvwek¦ `k nvRvi ‡KvwU eQi c‡i m‡e©v”P we›`y‡Z ‡cŠuQ‡e| ZLbI c«Pyi b¶Î R¡j‡Z \_vK‡e| AcwUK¨vj ‡Uwj‡¯‹vc w`‡q Avgv‡`i eskaiiv ZLbI Qvqvc‡\_i MwZc\_ ‡`L‡Z cvi‡e| ‡`Lv hv‡e, Qvqvc\_¸”Qiv µgk ax‡i `~‡i mi‡Q| GKmgq `~‡i miv eÜ K‡i Avevi G‡K Ac‡ii w`‡K Avm‡Z \_vK‡e| Avgv‡`i eZ©gv‡b ‡`Lv Qvqvc\_¸‡jv ‡m mgq AviI Pvi¸Y `~‡i \_vK‡e| gnvwe‡k¦i eqm evovi Kvi‡Y ‡m mg‡qi ‡R¨vwZwe©`iv Avg‡`i ‡P‡q `k¸Y ‡ewk `~‡ii wRwbm ‡`L‡Z cvi‡e1|d‡j Avgv‡`i ‡P‡q Zv‡`i ch©‡e¶Y‡hvM¨ gnvwe‡k¦ Qvqvc‡\_i msL¨v A‡bK A‡bK ‡ewk n‡e|

cy‡iv gnvwek¦ cvwo w`‡Z Av‡jvi eû wewjqb eQi mgq ‡j‡M hvq| d‡j GLb ‡\_‡K 100 wewjqb (`k nvRvi ‡KvwU) eQi c‡ii ‡R¨vwZwe©`iv gnvwe‡k¦i m‡¼vPb ‡`Lvi R‡b¨ Lye ‡ewk mgq cv‡eb bv| c«\_‡g Zviv ‡`L‡eb, A‡c¶vK…Z Kv‡Qi Qvqvc\_iv M‡oi Ici `~‡i bv m‡i KvQvKvwQ n‡”Q| wKš‘ `~‡ii Qvqvc‡\_i Av‡jv ZLbI ‡jvwnZ miY2 c«`k©b Ki‡e| `yB k ‡\_‡K GK nvRvi ‡KvwU eQ‡ii g‡a¨i ‡Kv‡bv GK mg‡qB ïay m‡¼vPb `…k¨gvb n‡e| Z‡e gnvRvMwZK cUf~wg Zvc wewKi‡Yi m~² cwieZ©b AviI mn‡R ‡evSv hv‡e| Avcbv‡`i wbðqB g‡b Av‡Q, GB cUf~wg wewKiY weM e¨vs‡qi aŸsmve‡kl| eZ©gv‡b Gi ZvcgvÎv cig k~b¨ ZvcgvÎvi wZb wWwM« Ic‡i| gv‡b 3 wWwM« ‡Kjwfb| gnvwe‡k¦i c«mvi‡Yi mv‡\_ mv‡\_ GB ZvcgvÎv Kg‡Q| `k nvRvi eQi c‡i GwU K‡g 1 wWwM« ‡Kjwfb n‡e| c«mvi‡Yi m‡e©v”P we›`y‡Z ZvcgvÎv me‡P‡q Kg n‡e| m‡¼vPb ïi“ nIqv gvÎB ZvcgvÎv Avevi evo‡Z ïi“ Ki‡e| gnvwe‡k¦i eZ©gvb mg‡qi Nb‡Z¡ ‡cŠuQ‡j AveviI ZvcgvÎv n‡e 3 wWwM« ‡Kjwfb| G‡Z mgq jvM‡e AviI `k nvRvi ‡KvwU eQi| gnvwe‡k¦i DÌvb I cZb mg‡qi mv‡c‡¶ ‡gvUvgywU c«wZmg3|

gnvwek¦ ivZvivwZ ¸wU‡q hv‡e bv| mwZ¨ ej‡Z, `yB k ‡\_‡K GK nvRvi ‡KvwU eQi a‡i Avgv‡`i eskaiiv my›`ifv‡e Rxebhvcb Ki‡Z cvi‡e| ‡mUv m‡¼vPb ïi“ n‡jI Ae¨vnZ \_vK‡e| wKš‘ ai“b m‡¼vPb ïi“ n‡Z AviI A‡bK ‡ewk mgq jvMj| GB ‡hgb GK nvRvi-‡KvwU-‡KvwU-‡KvwU eQi| GUv n‡j wKš‘ cwiw¯’wZ GZUv AbyK~‡j \_vK‡e bv| G‡¶‡Î c«mviY m‡e©v”P we›`y‡Z ‡cŠuQvi Av‡MB b¶Îiv wb®ú«f n‡q hv‡e| wPiKvj c«mvwiZ n‡Z \_vKv gnvwe‡k¦ ‡eu‡P \_vKv c«vYxiv ‡h mgm¨vq coZ, ‡mB GKB mgm¨v GLv‡bI n‡e|

GLb ‡\_‡K hZ eQi ciB m‡¼vPb ïi“ ‡nvK bv ‡Kb, GKBmsL¨K eQi c‡i gnvwek¦ Avevi eZ©gvb AvKv‡ii mgvb n‡e| Z‡e ‡`L‡Z A‡bKUv Avjv`v n‡e| m‡¼vPb `k nvRvi eQi c‡i n‡jI GLbKvi ‡P‡q A‡bK ‡ewkmsL¨K e­¨vK ‡nvj \_vK‡e| b¶Î \_vK‡e A‡bK Kg| evm‡hvM¨ M«n \_vK‡e c«‡qvR‡bi ‡P‡q ‡ewk|

gnvwe‡k¦i AvKvi cybivq eZ©gvb AvKv‡ii mgvb n‡Z n‡Z m‡¼vPb n‡e A‡bK `ª“Z MwZ‡Z| c«vq mv‡o wZb k ‡KvwU eQ‡i Gi AvKvi A‡a©K n‡q hv‡e| µ‡gB m‡¼vPb nvi AviI ‡e‡o hv‡e| Z‡e Avmj ‡Ljv ïi“ n‡e Gi c«vq GK nvRvi ‡KvwU eQi c‡i| G mgq gnvRMvwZK cUf~wg Zvc wewKi‡Yi ZvcgvÎv eo ûgwK n‡q ‡`Lv ‡`‡e| ZvcgvÎv 300 wWwM« ‡Kjwfb n‡j Zv‡ci ¶wZKi c«fve ‡\_‡K evuPv c…w\_exi R‡b¨ KwVb n‡q hv‡e| GwU Pigfv‡e Mig n‡Z \_vK‡e| c«\_‡gB M‡j hv‡e wnggyKyU( ice-cap) ev Zylvi‡m«vZ| Gici mgy‡`«i cvwb ev®ú n‡Z ïi“ Ki‡e|

4 ‡KvwU eQi c‡i cUf~wg wewKi‡Yi ZvcgvÎv c…w\_exi eZ©gvb Mo ZvcgvÎvi mgvb n‡e| c…w\_exi g‡Zv M«n¸‡jv ev‡mi R‡b¨ m¤ú~Y© Abyc‡hvMx n‡q co‡e| Aek¨ c…w\_ex Zvi Av‡MB emev‡mi Abychy³ n‡q hv‡e| KviY m~h© c«mvwiZ n‡q ‡jvwnZ `vbe (red giant) n‡e| GB mgqUvq Avgv‡`i eskaiiv hvIqvi R‡b¨ Avi ‡Kv‡bv RvqMv Lyu‡R cv‡e bv| ‡Kv‡bv wbivc` evm¯’vb \_vK‡e bv| Zvc weKi‡Y fwZ© \_vK‡e gnvwek¦| me RvqMvi ZvcgvÎv n‡e 300 wWwM« ‡mjwmqvm, hv AviI evo‡Z \_vK‡e| wb‡R‡K Mig cwi‡e‡k gvwb‡q ‡bIqv ev wngvwqZ cwi‡ek ‰Zwi K‡i Zvc ‡\_‡K i¶v Ki‡Z cviv ‡Kv‡bv ‡R¨vwZwe©` ‡`L‡eb, gnvwek¦ cvM‡ji g‡Zv MwZ‡Z ¸wU‡q hv‡”Q| K‡qK wgwjqb eQ‡iB AvKvi n‡q hv‡”Q A‡a©K| ZZw`b ch©š— wU‡K \_vKv ‡Kv‡bv Qvqvc\_‡K Avi Avjv`v K‡i ‡Pbv hv‡e bv| ZZw`b Zviv G‡K Ac‡ii mv‡\_ wg‡k hv‡e| Z‡e ZLbI A‡bK dvuKv ¯’vb \_vK‡e| b¶Î‡`i g‡a¨ msN‡li« NUbv NU‡e bv ej‡jB P‡j|

Awš—g gyn~Z© Kv‡Q P‡j G‡j gnvwe‡k¦i Ae¯’v Lye `ª“Z weM e¨vs‡qi mvgvb¨ c‡ii mg‡qi g‡Zv n‡q ‡h‡Z \_vK‡e| ‡R¨vwZwe©` gvwU©b wiR m‡¼vPbkxj gnvwe‡k¦i GKwU Ava¨vwZ¥K w`K wb‡q KvR K‡i‡Qb| c`v\_©we`¨vi wKQy mvaviY bxwZgvjv c«‡qvM K‡i wZwb m‡¼vP‡bi GKwU P~ovš— wPÎ ‰Zwi Ki‡Z ‡c‡i‡Qb| ‡kl ch©š— gnvRvMwZK Zvcxq wewKiY GZ Zxe« n‡e ‡h iv‡Zi AvKvk ‡eiwmK jvj is wewKiY Ki‡e| ax‡i ax‡i gnvwek¦ n‡q IV‡e GK me©M«vmx gnvRvMwZK Pywj­| hv me ai‡bi fO&¸i c«vY‡K ‡kl K‡i ‡`‡e, ‡m ‡hLv‡bB jywK‡q \_vKyK bv ‡Kb| GB ZvcgvÎvq M«n‡`i evqygÊjI wU‡K \_vK‡e bv| µ‡gB jvj wewKiY njy` I ‡k‡l mv`v n‡q hv‡e| cy‡iv gnvwe‡k¦ Dcw¯’Z c«PÊ GB Zvcxq wewKiY GKmgq b¶‡Îi Aw¯—Z¡‡KB ûgwK‡Z ‡dj‡e| wewKi‡Yi gva¨‡g kw³ ¶q Ki‡Z bv ‡c‡i b¶Îiv wb‡R‡`i Af¨š—‡i Zvc Rgv Ki‡e| GKmgq NUv‡e we‡ùviY| DËß M¨vm ev c­vRgv Øviv ¯’vb fwZ© n‡e| Gi wewKiY n‡e c«PÊ Zxe«| memgq Gi DòZv AviI evo‡ZB \_vK‡e|

cwieZ©‡bi MwZ evo‡Z \_vK‡e| cwiw¯’wZ n‡q IV‡e AviI Pig| µ‡gB Aí Aí mg‡qi g‡a¨B gnvwe‡k¦ j¶¨Yxq cwieZ©b ‡`Lv hv‡e| c«\_‡g GK j¶ eQi, c‡i GK nvRvi, c‡i GK k eQ‡iB D‡j­L‡hvM¨ cwieZ©b NU‡e| hv ‡k‡l ûU K‡i ‡gvo ‡b‡e fqven GK wech©‡qi w`‡K| ZvcgvÎv ‡e‡o c«\_‡g wgwjqb I c‡i wewjqb wWwM«‡Z ‡cŠuQ‡e| ‡h c`v\_© eZ©gv‡b e¨vcK RvqMv `Lj K‡i Av‡Q Zv ¸wU‡q ‡QvÆ RvqMvq ¯’vb ‡b‡e| GKwU Qvqvc‡\_i me fi gvÎ K‡qK Av‡jvKel© PIov ¯’v‡b Avk«q ‡b‡e| ‡kl wZb wgwbU P‡j Gj e‡j|

‡kl ch©š— ZvcgvÎv GZ evo‡e ‡h cigvYyi wbDwK¬qvmI ‡f‡O hv‡e| e¯—y ‡f‡½ wM‡q ‡gŠwjK KYv‡`i GKwU mylg m¨y‡c cwiYZ n‡e| Avcwb hZ¶‡Y GB c…ôvwU co‡eb Zvi ‡P‡q Kg mg‡q weM e¨vs I eû c«R‡b¥i b¶‡Îi gva¨‡g fvix ivmvqwbK e¯—y m…wói KvRwU Av‡Mi Ae¯’vq wd‡i ‡Mj| cigvYyi ‡h wbDwK¬qvmiv wU«wjqb wU«wjqb eQi a‡i wU‡K wQj AvR Zviv ‡kl n‡q ‡Mj wPiZ‡i| GK e­¨vK ‡nvjiv Qvov Avi me ai‡bi KvVv‡gv A‡bK Av‡MB wejxb n‡q ‡M‡Q| gnvwe‡k¦ weivR Ki‡Q GK gvwR©Z wKš‘ Aïf mvij¨| Avqy Av‡Q gvÎ K‡qK ‡m‡KÛ|

µ‡gB `ª“Z nv‡i gnvwe‡k¦i m‡¼vP‡bi mv‡\_ mv‡\_ ZvcgvÎvI evo‡Q A‡bK `ª“Z nv‡i| wVK KZUv evo‡Q ‡mUv KviI Rvbv ‡bB| e¯—y GZ k³ n‡q ¸wU‡q ‡M‡Q ‡h ‡c«vUb I wbDU«‡bi Avi Avjv`vfv‡e ‡Kv‡bv Aw¯—Z¡ ‡bB| Av‡Q ïay ‡Kvqv‡Ki« m¨yc| m‡¼vP‡bi nvi wKš‘ ZLbI evo‡Q|

Gevi P~ovš— gnvRvMwZK wech©‡qi mgq G‡m‡Q| Avi gvÎ K‡qK gvB‡µv‡m‡KÛ evwK| e­¨vK ‡nvjiv G‡K Ac‡ii mv‡\_ GKxf~Z n‡Z ïi“ Ki‡e| ¸wU‡q hvIqvi mgq gnvwe‡k¦i mvaviY Ae¯’v ‡\_‡K e­¨vK ‡nv‡ji ‡fZ‡ii Ae¯’v Aek¨ wfbœ n‡e| Giv GLb wbQKB ¯’vbKv‡ji Ggb AÂj hviv GKUy Av‡Mfv‡MB ‡kl cwiYwZ‡Z P‡j G‡m‡Q| hv‡`i mv‡\_ c‡i ‡hvM w`‡”Q gnvwe‡k¦i evwK Ask|

G‡Kev‡i ‡kl mg‡q gnvKl© me‡P‡q c«fvekvjx kw³‡Z cwiYZ nq| GwU wbg©gfv‡e ¯’vb I Kvj‡K `yg‡o-gyP‡o ‡d‡j| ¯’vbKv‡ji eµZv µ‡gB `ª“Z nv‡i evo‡Z \_v‡K| µ‡gB eo ‡\_‡K eo AÂ‡ji ¯’vb m¼ywPZ n‡q ‡QvU ‡\_‡K ‡QvU AvqZ‡bi ¯’v‡b RvqMv ‡bq| c«PwjZ ZË¡ ej‡Q, ‡fZ‡ii w`‡Ki GB Aš—t‡ùvUb Amxg kw³ AR©b K‡i| d‡j me e¯—y `yg‡o-gyP‡o ‡Pv‡Li mvg‡b ‡\_‡K DavI n‡q hvq| aŸsm K‡i ‡`q c«wZwU ‡fŠZ e¯—y‡K| GgbwK ¯’vb I KvjI ‡invB cvq bv| mewKQyi ¯’vb nq ¯’vbKv‡ji wms¸jvwiwU‡Z|

GUvB ‡kl cwiYwZ|

Avgiv GLb ch©š— hZUv eywS, GB gnvaŸm ïay e¯—yiB BwU NUvq bv, BwZ NUvq mKj wKQyiB| gnvaŸ‡mi mgq Kvj wb‡RI Aw¯—Z¡nxb n‡q hvq| d‡j Zvi c‡i Kx NU‡e ‡m c«‡kœi ‡Kv‡bv gv‡b nq bv| ‡hgwbfv‡e A\_©nxb weM e¨vs‡qi Av‡M Kx N‡U‡Q wR‡Ám ‡mUv Kiv| ÒcieZ©xÓ ej‡Z Avm‡j wKQyB ‡bB| Kv‡Ri Afve nIqvi g‡ZvI mgq ‡bB| dvuKv \_vKvi g‡ZvI ‡bB ‡Kv‡bv ¯’vb| weM e¨vs‡qi mgq k~b¨ ‡\_‡K Aw¯—‡Z¡ Avmv gnvwek¦ gnvaŸ‡mi gva¨‡g Avevi wgwj‡q hv‡e k~‡b¨B| GwU ‡h GZ gnvKvj a‡i weivRgvb wQj Zvi ‡Kv‡bv ¯§…wZwPýI ‡bB|

Ggb GKwU m¤¢vebv ‡`‡L wK Avgv‡`i gb Lvivc Kiv DwPZ? Avm‡j ‡KvbwU Lvivc: wPiKvj c«mvwiZ n‡Z n‡Z ‰ewkó¨nxb n‡q hvIqv GK AÜKvi k~b¨Zv, bvwK ¸wU‡q wM‡q we¯§…wZi AZj MnŸ‡i wgwj‡q hvIqv GK gnvwek¦? ‡hLv‡b gnvwek¦ ‡\_‡K mgqB nvwi‡q hv‡e ‡mLv‡b Agi‡Z¡i m¤¢vebvB ev ‡Kgb?

wPiKvj c«mvwiZ n‡Z \_vKv `~i fwel¨‡Zi gnvwe‡k¦i ‡P‡q gnvaŸ‡mi ‡¶‡ÎB ‡Zv c«v‡Yi wU‡K \_vKv ‡ewk KwVb g‡b n‡”Q| GLv‡b kw³i ¯^íZv ‡Kv‡bv mgm¨v bq| eis kw³i AvwaK¨B mgm¨v Ki‡Q| Z‡e wech©q P‡j Avmvi Av‡M Avgv‡`i eskaiiv nqZ c«¯—ywZi R‡b¨ GK k ‡KvwU ev GgbwK GK j¶ ‡KvwU eQi mgq cv‡e| GB mg‡q c«vY cy‡iv gnvwe‡k¦ Qwo‡q ‡h‡Z cv‡i| m‡¼vPbwkj gnvwe‡k¦i me‡P‡q mij bgybvq ¯’v‡bi ‡gvU AvqZb Avm‡j mmxg| Gi KviY n‡jv ¯’vb ‡eu‡K \_v‡K| Avi GwU GKwU ‡Mvj‡Ki c…‡ôi g‡Zv K‡i wÎgvwÎK RM‡Z wb‡Ri mv‡\_ hy³ \_vK‡Z cv‡i| d‡j ‡evSv KwVb bq ‡h eyw×gvb Rx‡eiv cy‡iv gnvwe‡k¦ Qwo‡q c‡o Gi Ici wbqš¿Y c«wZôv Ki‡Z cv‡i| Zvi gv‡b wb‡R‡`i nv‡Z \_vKv meiKg im` wb‡q Zviv gnvaŸm‡K ‡gvKv‡ejv Kivi R‡b¨ c«¯—yZ \_vK‡e|

c«\_g `…wó‡Z ‡`‡L ‡evSv hv‡”Q bv ‡Kb Zviv wU‡K \_vKvi wPš—v Ki‡e| gnvaŸ‡mi ci hw` ‡eu‡P \_vKv Am¤¢eB nq, Zvn‡j hš¿Yv‡K Avi evwo‡qB ev Kx jvf? wU«wjqb wU«wjqb eQ‡ii cyi‡bv gnvwe‡k¦ ‡kl aŸs‡mi 10 jvL eQi Av‡Mi g…Z¨yI hv, 1 ‡KvwU eQi c‡ii g…Z¨yI Zv| Z‡e Avgv‡`i fy‡j ‡M‡j Pj‡e bv, mgq wKš‘ Av‡cw¶K| Avgv‡`i eskai‡`i wbR¯^ mgq wKš‘ Zv‡`i wecvKwµqv I Z\_¨ c«‡mm Kivi MwZi Ici wbfi« Ki‡e| ZvB AveviI ej‡Z n‡”Q, kvixwiK AvK…wZ‡K Lvc LvB‡q wb‡Z c«Pyi mg‡q cv‡”Q e‡j Zviv nqZ ‡Kv‡bvfv‡e AgiZ¡ AR©‡b m¶g n‡e|

ZvcgvÎv evovi A\_© KYv‡`i PjvPjI evo‡e| ‡fŠZ c«wµqv¸‡jvI Pj‡e `ª“Z MwZ‡Z| g‡b ivL‡Z n‡e, eyw×gvb Rx‡ei R‡b¨ Avek¨Kxq c«‡qvRb n‡jv Z\_¨ c«‡mm Ki‡Z cviv| ZvcgvÎv evo‡Z \_vKv gnvwe‡k¦ wKš‘ Z\_¨ c«‡mm Kivi MwZI evo‡e| ‡h Rxe GK k ‡KvwU wWwM«i ZvcMZxq c«wµqv‡KI Kv‡R jvMv‡Z wkL‡e, Zvi Kv‡Q gnvwe‡k¦i Avmbœ g…Z¨y‡K g‡b n‡e eû eQi c‡ii NUbv| hZUyKy mgq evwK Av‡Q ‡mUv‡K hw` g‡bi g‡a¨ Amxg g‡b nq, Zvn‡j mgvwß wb‡q wPš—v Kivi ‡Zv `iKviB ‡bB| m‡¼vPb evo‡Z evo‡Z gnvaŸm µ‡gB `ª“ZZvi mv‡\_ hZB wbKUeZ©x n‡e, ZvwË¡Kfv‡e mgq µ‡gB ZZ ax‡i Pj‡e e‡j g‡b n‡e| wPš—vi MwZ ‡e‡o hvIqvi mv‡\_ mv‡\_ A¨vigv‡MW‡bi w`‡KI wbKUeZ©x nIqvi ‡eM evo‡e| h‡\_ó im` \_vK‡j GB Rxe¸‡jv mwZ¨Kvi A‡\_©B mgq wKb‡Z cvi‡e|

‡KD nqZ fve‡Z cv‡ib, m‡¼vPbkxj gnvwe‡k¦ evm Kiv ‡Kv‡bv gnvc«vYx GK`g ‡kl gyn~‡Zi« mmxg mg‡q AmxgmsL¨K Avjv`v wPš—v I AwfÁZv m¤úbœ Ki‡Z cvi‡e wK bv| Rb e¨v‡iv I dª¨vsK wUcjvi GB c«kœwU‡K we‡k­lY K‡i‡Qb| ‡kl w`‡Ki ch©vq¸‡jvi ‡fŠZ Ae¯’vi Ici c«kœwUi DËi Lye ‡ewk wbfi«kxj| ‡hgb ai“b, ‡k‡li wms¸jvwiwUi w`‡K GwM‡q hvIqvi mgq gnvwek¦ ‡gvUvgywU mylg \_vKj| Zvn‡j wKš‘ GKwU mgm¨v n‡q hv‡e| wPš—vi ZB hvB ‡nvK bv ‡Kb, Av‡jvi MwZ wKš‘ cvëv‡”Q bv| Av‡jv wKš‘ ‡m‡K‡Û GK Av‡jvK‡m‡K‡Ûi4 ‡ewk c\_ ‡h‡Z cvi‡e bv| ‡Kv‡bv ‡fŠZ c«wZwµqv m‡e©v”P KZ `ª“Z c«evwnZ n‡Z cv‡i Zv‡Z Av‡jvi MwZ GKwU mxgv ‡eu‡a ‡`q| d‡j ‡evSvB hv‡”Q, GK`g ‡kl ‡m‡K‡Û gnvwe‡k¦i GK Av‡jvK‡m‡K‡Ûi ‡ewk `~‡ii `ywU RvqMvi g‡a¨ ‡hvMv‡hvM nIqv m¤¢e bq| (GUvI NUbv w`M‡š—i GKwU D`vniY, ‡hgwbfv‡e e­¨vK‡nv‡j GKwU wbw`©ó mxgvi evB‡i ‡Kv‡bv Z\_¨ ‡cŠuQ‡Z cv‡i bv|) gnvwe‡k¦i mgvwß wbKUeZ©x n‡Z \_vK‡j ‡hvMv‡hvM‡hvM¨ AÂj I Zv‡Z Dcw¯’Z KYvi msL¨v K‡g k~b¨‡Z ‡b‡g Av‡m| GKwU wm‡÷g‡K Z\_¨ c«‡mm Ki‡Z n‡j wm‡÷‡gi me As‡ki g‡a¨ ‡hvMv‡hvM \_vK‡Z n‡e| cwi®‹vi ‡evSv hv‡”Q, Av‡jvi ‡eM wbw`©ó nIqvq ‡k‡li mg‡qi ‡h‡Kv‡bv Ògw¯—®‹Ó‡K ‡QvU evwb‡q ‡dj‡e| Ges Gi d‡j nqZ Ggb GKwU gw¯—‡®‹i Avjv`v Avjv`v Ae¯’v ev wPš—vi msL¨vI K‡g hv‡e|

GB evav‡K `~i Ki‡Z n‡j gnvRvMwZK m‡¼vP‡bi ‡kl ch©vq¸‡jv‡K mylgZv ‡\_‡K gy³ \_vK‡Z n‡e| Ges mwZ¨ ej‡Z GUvI GKwU m¤¢ve¨ NUbv| gnvKl©xq m‡¼vPb wb‡q we¯—vwiZ we‡k­lY Pvwj‡q ‡`Lv ‡M‡Q, gnvwe‡k¦i Aš—t‡ùvU‡bi mv‡\_ mv‡\_ wewfbœ w`‡K Aš—t‡ùvU‡bi nvi wfbœ wfbœ n‡e| Drmy‡Ki e¨vcvi n‡jv, GK w`‡K `ª“Z I Av‡iK w`‡K ax‡i gnvwe‡k¦i m‡¼vPbUvB ïay welq bq| e¨vcvi n‡jv, ¯ú›`b ïi“ n‡j me‡P‡q `ª“Z Aš—t‡ùvU‡bi w`KI cv‡ë hvq| ev¯—eZv n‡jv, wejywßi Av‡Mi mg‡q µ‡gB ‡e‡o Pjv Db¥v`bv I RwUjZvi d‡j gnvwek¦ Gw`K-Iw`K ‡`vj ‡L‡Z \_v‡K|

e¨v‡iv I wUcjvi aviYv Ki‡Qb, RwUj Gme ¯ú›`‡bi Kvi‡Y c«\_‡g GK w`‡Ki NUbv w`Mš— nvwi‡q hv‡e| c‡i nviv‡e Ab¨ GK w`‡Ki NUbv w`Mš—| d‡j me w`‡Ki AÂjB nv‡Zi bvMv‡j \_vK‡e| gnvgw¯—®‹¸‡jv‡Z n‡Z n‡e eyw×‡Z ficyi| ¯ú›`‡bi Kvi‡Y GK w`‡K Ab¨ w`‡Ki ‡P‡q Aš—t‡ùvUb `ª“Z NU‡Z \_vK‡j ‡hvMv‡hv‡Mi w`KI e`‡j ‡dj‡Z n‡e| c«vYxiv Zvj wgwj‡q Pj‡Z cvi‡j ¯ú›`b ‡\_‡KB wPš—v c«‡mm Kivi c«‡qvRbxq kw³ wgj‡e| GQvovI mij MvwYwZK bgybv ‡\_‡K ‡`Lv hv‡”Q, gnvaŸ‡mi gva¨‡g mgvwßi Av‡Mi mmxg mg‡q AmxgmsL¨K ¯ú›`b n‡e| Gi gva¨‡g ZvwË¡Kfv‡e Amxg cwigvY Z\_¨ c«‡mm Kivi my‡hvM n‡e| Zvi gv‡b gnvc«vYx‡`i wnmv‡e mg‡qi cwigvY n‡e Amxg| d‡j Zv‡`i g‡bi ‡fZ‡i RMZUvi KLbI BwZ NU‡e bv| hw`I gnvaŸ‡mi gva¨‡g ‡fŠZ RMr nVvr K‡i ‡bB n‡q hv‡e|

Amxg ¶gZvi GKwU gw¯—®‹ Kx Ki‡Z cv‡i? wUcjv‡ii g‡Z GwU Gi wb‡Ri Aw¯—‡Z¡i me¸‡jv w`K wb‡q wePvi-we‡k­lY Ki‡Z cvi‡e bv| cy‡iv gnvwek¦‡KI eyS‡Z cvi‡e bv| wKš‘ Z\_¨ c«‡m‡mi ¶gZv Amxg nIqvq GwU fvP©yqvj ev¯—eZvq KvíwbK RM‡Z wePiY K‡i ‡h‡Z cvi‡e| Gfv‡e GwU g‡bvRM‡Z AmxgmsL¨K m¤¢ve¨ gnvwek¦‡K aviY Ki‡Z cvi‡e| ‡kl wZb wgwbU ïay Amxg ch©š—B we¯—…Z n‡e bv, G mgq Amxg iK‡gi QÙ ev¯—eZvI ‰Zwi Kiv hv‡e|

Z‡e `ytLRbK welq n‡jv, (wKQyUv cvMjv‡U) GB aviYv¸‡jv Lye wbw`©ó ‡fŠZ bgybvi Ici wbfi«kxj| nqZ ‡m¸‡jv G‡Kev‡iB Aev¯—e| GQvov G¸‡jv‡Z ‡Kvqv›Uvg c«fve‡KI D‡c¶v Kiv n‡q‡Q, ‡h c«fve nqZ ‡kl mg‡qi gnvKl©xq Aš—t‡ùvUb‡K me‡P‡q ‡ewk wbqš¿Y Ki‡e| ‡mB c«fv‡ei Kvi‡Y nqZ Z\_¨ c«‡m‡mi nv‡iI GKwU P~ovš— mxgv evuav \_vK‡e| ‡m‡¶‡Î Avgiv Avkv Kie, gnvc«vYx ev mycviKw¤úDUvi ‡hb Aš—Z Aw¯—Z¡‡K h‡\_ó cwigvY eyS‡Z ‡c‡i nv‡Z \_vKv mg‡q wb‡Ri mgvwß‡K mn‡R ‡g‡b wb‡Z cv‡i|

Abyev`‡Ki ‡bvU

1| Av‡MI Gi KviY ejv n‡q‡Q| Av‡jvi ‡eM A‡bK ‡ewk n‡jI wbw`©ó nIqvi Kvi‡Y Avgiv B‡”Qg‡Zv `~‡ii wRwbm ‡`L‡Z cvwi bv| ïay hZ `~i ‡\_‡K Av‡jv Avgv‡`i ‡Pv‡L G‡m Avm‡Z ‡c‡i‡Q, ZZ `~‡ii wRwbmB ‡`L‡Z cvB| Z‡e mgq Movevi mv‡\_ mv‡\_ AviI `~i ‡\_‡K Av‡jv Avmvi my‡hvM cv‡e e‡j µ‡gB AviI `y‡ii I AZx‡Zi e¯—yI Avgiv ‡`L‡Z cvie|

2| gnvRvMwZK gvcKvwV‡Z `~‡i miv e¯—yi Av‡jvi K¤úv¼ K‡g hvq| d‡j ‡e‡o hvq Zi½‰`N¨©| G Kvi‡Y `…k¨gvb Av‡jvi is jvj n‡q hvq| GUvB ‡jvwnZ miY|

3| GKwU we›`y ev Ae¯’v‡bi mv‡c‡¶ ‡Kv‡bv wRwbm‡K `yB wecixZ w`K ‡\_‡K ‡`L‡Z GKB iKg ‡`Lv ‡M‡j Zv‡K c«wZmg wRwbm ev NUbv e‡j| ‡hgb ai“b, ‡KD mKvj 10Uvq evwo ‡\_‡K ‡ei n‡jb| 2 wgwbU c‡i ev‡m DV‡jb| 20 wgwbU c‡i Kv‡Qi kn‡i ‡M‡jb| 16 wgwbU a‡i evRvi Ki‡jb| c‡ii 20 wgwb‡U ev‡m K‡i G‡m bvg‡jb evm÷¨v‡Û| c‡ii 2 wgwb‡U evmvq P‡j G‡jb| ‡Lqvj K‡i ‡`Lyb, mv‡o 10Uvi `yB w`‡Ki NUbv¸‡jv GKBiKg| Zvn‡j GB f`«‡jv‡Ki Kv‡Ri LwZqvb mv‡o `kUvi mv‡c‡¶ c«wZmg| Aek¨ AviI m~²fv‡e fve‡j GB PjvPj‡K c«wZmg Ki‡Z n‡j AviI wKQy welq wPš—v Ki‡Z n‡e| Avevi ai“b, GKwU iv¯—v‡K GKwU RvqMv ‡\_‡K ‡`L‡j `yB w`‡KB GKBiKg ‡`Lv hvq| Zvn‡j GB iv¯—vI c«wZmg| Avgv‡`i gvbe‡`nI wKš‘ c«wZmg ai‡bi| Avgv‡`i ‡`‡ni Dci ‡\_‡K bx‡P GKwU ‡iLv Kíbv Ki“b| GB ‡iLvi `yB w`K c«vq GKB iKg| GUvI GK ai‡bi c«wZmvg¨| GKwU gv‡e©j‡K gvSLvb w`‡q ‡K‡U ‡dj‡j `yB w`K GKB iKg n‡e| ZvB, e¨vm eivei gv‡e©jI c«wZmg|

4| Av‡jv GK ‡m‡K‡Û hZ `~i hvq Zv‡K GK Av‡jvK‡m‡KÛ e‡j| ‡hgwb GK eQ‡i AwZµvš— c\_‡K GK Av‡jvKel© e‡j| Zvi gv‡b GK Av‡jvK‡m‡KÛ Avm‡j GK j¶ 86 nvRvi gvBj ev 3 j¶ wK‡jvwgUvi|

`kg Aa¨vq

nVvr g…Z¨y I cybR©b¥

G ch©š— Avwg a‡i wb‡qwQ gnvwe‡k¦i cwiYwZ wba©vwiZ n‡e A‡bK A‡bK w`b c‡i| nqZ Amxg mgq c‡ii fwel¨‡Z| nqZ ‡mUv NU‡e we‡ùviY wKsev AvZ©bv‡`i (AviI mwVK K‡i ej‡j KPKP kã ev Zxe« wngvqb) gv‡a¨g| gnvwek¦ m¼ywPZ n‡j ‡mB Avmbœ NUbvi eû wewjqb eQi Av‡MB Avgv‡`i eskaiiv AvMvg m‡¼Z cv‡e| wKš‘ AviI ‡ewk fqven GKwU m¤¢vebvI Av‡Q|

Avwg Av‡MB e‡jwQ, gnvwe‡k¦i w`‡K ZvKv‡j ‡R¨vwZwe©`iv gnvwe‡k¦i eZ©gvb Ae¯’vi Zvr¶wYK ‡Kv‡bv wPÎ ‡`‡Lb bv| `~‡ii AÂj ‡\_‡K Avgv‡`i Kv‡Q Av‡jv Avm‡Z mgq jv‡M e‡j Avgiv GKwU e¯—yi ‡mB Ae¯’v ‡`wL hLb GwU ‡\_‡K Av‡jv ‡ei n‡qwQj| ‡Uwj‡¯‹vc ïay `~‡ii wRwbm ‡`Lvi hš¿ bq, AZx‡Zi wRwbm ‡`LviI hš¿| GKwU e¯—y hZ `~‡i n‡e, Gi ZZ AZx‡Zi wPÎ AvR ‡`Le Avgiv| ev¯—eZv n‡jv, ‡R¨vwZwe©`‡`i Kv‡Q gnvwek¦ n‡jv ¯’vb I Kv‡ji gvSLvb w`‡q ‡K‡U wb‡q GK dvwj AZxZ| ‡KZvwe bvg AZx‡Zi jvBU ‡Kvb (cone)| 10.1 wP‡Î GwU ‡`Lv‡bv n‡q‡Q|

Av‡cw¶KZv ZË¡ Abymv‡i ‡Kv‡bv Z\_¨ ev ‡fŠZ NUbv Av‡jvi ‡P‡q `ª“Z ‡h‡Z cv‡i bv| AZx‡Zi jvBU ‡Kvb (Av‡jvi ‡Kvb) Avgv‡`i Ávb‡K ‡hgb mxwgZ Ki‡Q, ‡Zgwb mxwgZ Ki‡Q eZ©gv‡b Avgv‡`i‡K c«fvweZ Ki‡Z cviv NUbv‡KI| Zvi gv‡b ‡h ‡fŠZ NUbv Avgv‡`i w`‡K Av‡jvi ‡e‡M Avm‡Q, ‡mwU Avm‡Q ‡Kv‡bv c~e©m‡¼Z QvovB| wech©q hw` AZx‡Zi jvBU ‡Kvb ‡e‡q ‡\_‡K ‡a‡q Av‡m, Zvn‡j ‡mB wec` Av‡M ‡\_‡K ‡evSvB hv‡e bv| AvNvZc«vß nevi c‡iB ‡Kej c«\_g Gi K\_v Rvbv hv‡e|

wPÎ 10.1

[¯’vb I Kv‡ji GKwU wbw`©ó we›`y P wPš—v Ki“b| GUv nqZ GLb Ges GLv‡b| ‡hgb, gnvwe‡k¦i w`‡K ZvKv‡bv GKRb ‡R¨vwZwe©` Avm‡j ‡`L‡Qb Gi AZxZ Ae¯’v| eZ©gvb Ae¯’v bq| P we›`y‡Z Avmv Av‡jv Z\_¨ P Gi gva¨‡g AZx‡Zi jvBU ‡Kvb ‡e‡q Avm‡Q, hvi MwZc\_ Zxh©K ‡iLv w`‡q ‡`Lv‡bv n‡q‡Q| Av‡jvi ‡P‡q `ª“Z ‡Kv‡bv Z\_¨ ev ‡fŠZ c«fve Pj‡Z cv‡i bv e‡j GB gyn~‡Zi« GKRb ch©‡e¶K ïay Qwei Mvp AÂ‡j NUv c«fve ev NUbv ‡`L‡Z cv‡eb| AZx‡Zi Av‡jvK ‡Kv‡bi evB‡i NUv ‡Kv‡bv `~‡h©vM nqZ c…w\_exi w`‡K wec`m‡¼Z cvVv‡Z \_vK‡e| wKš‘ ch©‡e¶K ‡mUv bv ‡R‡bB Avb‡›`i g‡a¨ mgq cvi Ki‡e|]

GKwU mij KvíwbK D`vniY wPš—v Kwi| GB gyûZ© m~h© we‡ùvwiZ n‡j Avgiv ‡mUv Rvb‡Z cvie mv‡o AvU wgwbU c‡i| m~h© ‡\_‡K Avgv‡`i Kv‡Q Avm‡Z GB mgqUyKyB jv‡M| GKBfv‡e n‡ZB cv‡i, Kv‡Qi ‡Kv‡bv b¶Î Gi g‡a¨B mycvi‡bvfv wn‡m‡e we‡ùvwiZ n‡q‡Q| GUv n‡j c…w\_ex c«vYNvZx wewKi‡Y ‡Q‡q hv‡e| wKš‘ ‡mUv bv ‡R‡bB AviI K‡qK eQi Avgiv Avb‡›`B mgq KvUv‡ev| A\_P wech©‡qi Lei wKš‘ Avgv‡`i w`‡K Av‡jvi ‡e‡MB Qy‡U Avm‡e| d‡j, GB gyn~‡Z© gnvwek¦‡K ‡`L‡Z h‡\_ó g‡b n‡jI Avgiv wbwðZ Ki‡Z e‡j w`‡Z cvwi bv fq¼i wKQy B‡Zvg‡a¨B N‡U hvqwb|

me‡P‡q AvKw¯§K wech©‡qi ¶q¶wZ NUbvi gnvRMvwZK AÂ‡ji Av‡kcv‡kB mxgve× \_vK‡e| b¶‡Îi g…Z¨y ev e­¨vK‡nv‡ji g‡a¨ e¯—yi cZb M«n I Av‡kcv‡ki b¶Î‡K c«fvweZ Ki‡e| Gi c«fveB nqZ K‡qK Av‡jvKe‡li« g‡a¨ mxgve× \_vK‡e| me‡P‡q j¶¨bxq we‡ùviY NU‡e wKQy wKQy Qvqvc‡\_i Af¨š—‡i NUv NUbvq| Av‡MI e‡jwQ, gv‡Sgv‡S Av‡jvi ‡e‡Mi eo GK fMœvs‡ki g‡a¨ e¯—yi wekvj wekvj wcPwKwi wbM©Z nq| ‡mB mv‡\_ ‡ewi‡qq Av‡m wecyj cwigvY wewKiY| GB wek…•Ljvi c«fve cy‡iv Qvqvc\_Ry‡o \_v‡K|

wKš‘ cy‡iv gnvwek¦‡K Kvuwc‡q ‡`Iqv NUbv¸‡jv ‡Kgb n‡e? Ggb ‡Kv‡bv Av‡jvob wK m¤¢e hv GK av°vq cy‡iv gnvwek¦‡KB Gi ga¨eq‡mB ‡kl K‡i ‡`‡e? Ggb wK n‡Z cv‡i ‡h mwZ¨Kv‡ii ‡Kv‡bv gnvRvMwZK wech©q ïi“B n‡q ‡M‡Q? hvi Aïf c«fve nqZ Avgv‡`i AZx‡Zi jvBU ‡Kvb ‡e‡q ‡a‡q Avm‡Q? aŸsm n‡Z hv‡”Q Avgv‡`i ¯’vbKv‡ji fO&¸i KvVv‡gv?

1980 mv‡j wmWwb ‡Kvjg¨vb I dª¨vsK wW jywmqv wdwRK¨vj wiwfD Rvb©v‡j GKwU fqvbK M‡elYvcÎ c«Kvk K‡ib| wk‡ivbvgUv G‡Kev‡iB A¶wZKi, Òk~b¨¯’vb ¶‡qi gnvKl©xq c«fve|Ó Zvuiv ‡h f¨vKyqvg ev k~b¨ ¯’v‡bi K\_v ej‡Qb ‡mwU wbQKB dvuKv ¯’vb bq| GUv n‡jv ‡Kvqv›Uvg wdwR‡·i dvuKv ¯’vb| Z…Zxq Aa¨v‡q Avwg e¨vL¨v K‡iwQ, Avgiv ‡hUv‡K dvuKv ¯’vb g‡b Kwi ‡mLv‡b Avm‡j c«Pyi cwigvY ¶Y¯’vqx ‡Kvqv›Uvg Kg©KvÊ N‡U Pj‡Q| ‰`e Db¥v`bvq f~Zy‡o fvP©yqvj KYviv c«wZ gyn~‡Z© Avwef©~Z I DavI n‡q hv‡”Q| Avcbv‡`i nqZ g‡b Av‡Q, GB f¨vKyqvg Ae¯’v wKš‘ Abb¨ bq| ‡Kvqv›Uvg Ae¯’v K‡qKwU n‡Z cv‡i| hvi me¸‡jvB n‡e dvuKv| wKš‘ me¸‡jvi ‡Kvqv›Uvg Kg©Kv‡Êi ¯—i wfbœ wfbœ| c«‡Z¨K Ae¯’vi kw³I Avjv`v Avjv`v|

‡Kvqv›Uvg wdwR‡·i myc«wZwôZ GKwU bxwZ n‡jv, D”Pkw³i Ae¯’v wbgœkw³i Ae¯’vq ‡b‡g Avm‡Z Pvq| ‡hgb ai“b, GKwU cigvYy A‡bK¸‡jv D‡ËwRZ Ae¯’vq \_vK‡Z cv‡i| hvi me¸‡jv Ae¯’vB Aw¯’wZkxj| GwU me‡P‡q wbgkw³i Ae¯’vq ev wbgœZ‡ji Ae¯’vq ‡b‡g Avm‡Z ‡Póv Ki‡e| GKBfv‡e GKUy D‡ËwRZ f¨vKyqvgI wbgœZg kw³i ev ÒmwZ¨Kv‡iiÓ f¨vKyqv‡g ‡b‡g Avm‡Z ‡Póv Ki‡e| ùxwZgq gnvwe‡k¦ a‡i ‡bIqv n‡q‡Q, Lye c«viw¤¢K gnvwek¦ D‡ËwRZ ev ÒQÙÓ f¨vKyqvg Ae¯’vq wQj| G mgq GwU Pigfv‡e ùxZ n‡q I‡V| wKš‘ Lye Aí mg‡qi g‡a¨ GB Ae¯’v mwZ¨Kv‡ii f¨vKyqv‡g P‡j Av‡m| ‡kl nq ùxwZ|

mvaviYZ g‡b Kiv nq, gnvwek¦ eZ©gv‡b mwZ¨Kv‡ii f¨vKyqvg Ae¯’vq Av‡Q| Zvi gv‡b, Avgv‡`i mg‡qi dvuKv ¯’vb n‡jv me‡P‡q wbgœkw³i f¨vKyqvg| wKš‘ Avgiv wK wbwðZ K‡i ‡mUv ej‡Z cvwi? ‡Kvjg¨vb I wW jywmqv GKwU fqvbK m¤¢vebvi K\_v ej‡Qb| eZ©gv‡bi f¨vKyqvg nqZ mwZ¨Kv‡i f¨vKyqvg bq| GUv nqZ AvcvZZ `xN©¯’vqx ‡Kv‡bv bKj f¨vKyqvg| hvi Kvi‡Y nqZ fyj K‡i Avgiv g‡b K‡i wb‡qwQ Avgiv wbivc` AvwQ| KviY GB bKj f¨vKyqvg K‡qK wewjqb eQi a‡i wU‡K Av‡Q| Avgiv A‡bK ai‡bi ‡Kvqv›Uvg Ae¯’vi K\_v Rvwb| ‡hgb BD‡iwbqvg wbDwK¬qvm, hvi Aa©vqy wewjqb wewjqb eQi| GKevi g‡b Ki“b ‡h eZ©gv‡bi f¨vKyqvgI GB ai‡bi, Zvn‡j? ‡Kvjg¨vb I wW jywmqvi M‡elYvc‡Îi wk‡ivbv‡g Dwj­wLZ f¨vKyqv‡gi ¶q ‡\_‡K GKwU fqvbK m¤¢vebv cvIqv hv‡”Q| nqZ eZ©gvb f¨vKyqvg ûU K‡i aŸsm n‡q ‡h‡Z cv‡i| gnvwek¦ P‡j ‡h‡Z cv‡i AviI wbgœkw³i Ae¯’vq| hvi cwiYvg Avgv‡`i R‡b¨ n‡e fqvbK (Ges evwK mevi R‡b¨I)|

‡Kvjg¨vb I wW jywmqvi c«¯—vebvi ‡cQ‡b KvR Ki‡Q ‡Kvqv›Uvg Uv‡bwjs c«wµqv| G‡K me‡P‡q mn‡R e¨vL¨v Kivi R‡b¨ GKwU ‡Kvqv›Uvg KYv GKwU e‡ji evavq AvU‡K Av‡Q—Ggb mij wPÎ we‡ePbv Kiv ‡h‡Z cv‡i| ai“b, 10.2 wP‡Îi g‡Zv KYvwU GKwU DcZ¨Kvq AvU‡K Av‡Q| `yB cv‡k Av‡Q Lvov cvnvo| ev¯—‡e cvnvoB n‡Z n‡e Ggb K\_v ‡bB| ‡hgb, Zviv ‰e`¨ywZK ev wbDK¬xq e‡ji ‡¶ÎI n‡Z cv‡i| GB cvnvo cvwo ‡`Iqvi (ev ej‡¶Î‡K AwZµg Kivi) kw³ Dcw¯’Z bv \_vK‡j g‡b n‡e KYvwU wPiKvj AvU‡KB \_vK‡e| wKš‘ g‡b Ki“b ‡`Lyb, ‡Kvqv›Uvg KYviv nvB‡Rbev‡Mi« AwbðqZv bxwZ gvb‡Z eva¨| hvi Kvi‡Y Giv Aí mg‡qi R‡b¨ kw³ avi Ki‡Z cv‡i| Gi d‡j gRvi GKwU m¤¢vebv ‰Zwi nq| KYvwU cvnv‡oi P~ovq IVvi g‡Zv kw³ avi Ki‡Z cvi‡j Ges avi Kiv kw³ wdwi‡q ‡`evi Av‡MB Icv‡k ‡b‡g ‡h‡Z cvi‡jB ‡Zv AvUKve¯’v ‡\_‡K ‡ewi‡q ‡h‡Z cvi‡Q| ev¯—‡eB GwU evav ‡\_‡K myo½ ‡K‡U ‡ewi‡q ‡Mj|

wPÎ 10.2

[Uv‡bj B‡d± ev myo½ c«fve| `yB cvnv‡oi gv‡Si DcZ¨Kvq Ave× ‡Kvqv›Uvg KYviI kw³ avi K‡i cvnv‡oi Icv‡k P‡j hvIqvi GKwU ¶y`« m¤¢vebv Av‡Q| ev¯—‡e myo½ ‡K‡U Icv‡k P‡j hvIqv ch©‡e¶‡Y ‡`LvI ‡M‡Q| Gi GKwU cwiwPZ D`vniY n‡jv, wKQy ‡gŠwjK c`v‡\_i« wbDwK¬qv‡mi Avjdv KYv wbDK¬xq e‡ji evav‡K dvuwK w`‡q ‡ei n‡q hvq| GB c«wµqvi bvg Avjdv ‡ZRw¯ŒqZv| GB D`vni‡Y cvnvo n‡jv wbDK¬xq I Zwo”Py¤^Kxq ej| AvuKv QweUv wbQKB NUbvwU‡K mn‡R ‡evSv‡bvi R‡b¨B ‡`Iqv n‡q‡Q|]

Ggb Ave× RvqMv ‡\_‡K ‡Kvqv›Uvg KYvi myo½ ‡K‡U ‡ewi‡q hvIqv evavi D”PZv I c«‡¯’i Ici Lye m~²fv‡e wbfi« K‡i| D”PZv hZ ‡ewk n‡e, KYv‡K Ic‡i IVvi R‡b¨ ZZ ‡ewk kw³ avi Ki‡Z n‡e| d‡j AwbðqZv bxwZ Abymv‡i FYI wdwi‡q w`‡Z n‡e ZZ ZvovZvwo| Zvi gv‡b D”P evav cvi n‡Z n‡j evav‡K n‡Z n‡e wPKb| hv‡Z Lye `ª“Z FY wdwi‡q ‡`Iqvi Av‡MB evav cvi n‡q hvIqv hvq| G Kvi‡YB myo½ c«fve wbZ¨w`b ‡Pv‡L c‡o bv| eo iK‡gi Uv‡bwjs NU‡Z n‡j ‡h ai‡bi D”P I c«k¯— evav nIqv hv‡e, eo RM‡Zi evav¸‡jv Zvi ‡P‡q ‡ewk eo| bxwZMZfv‡e GKRb gvbyl GKwU B‡Ui ‡`qvj ‡f` K‡i P‡j ‡h‡Z cvi‡e| wKš‘ G A‡jŠwKK KvR Ki‡Z cvivi ‡Kvqv›Uvg myo½ m¤¢vebv A‡bK A‡bK A‡bK ¶y`«| Z‡e cvigvYweK RM‡Z Uv‡bwjs Anin N‡U| D`vniY¯^iƒc, Avjdv ‡ZRw¯ŒqZv G c«wµqv‡ZB N‡U| Aa©cwievnx I Ab¨vb¨ ‰e`¨ywZK hš¿cvwZ‡ZI myo½ c«fve Kv‡R jvMv‡bv nq| ‡hgb B‡jKU«b AYyex¶Yh‡š¿ Uv‡bwjs‡qi gva¨‡g ¯‹¨vb Kiv|

eZ©gvb f¨vKyqv‡gi m¤¢ve¨ ¶‡qi mgm¨v m¤ú‡K© ‡Kvjg¨vb I wW jywmqv Abygvb Ki‡Qb, f¨vKyqvg ‰Zwi Kiv ‡Kvqv›Uvg ‡¶Î nqZ 10.3 wP‡Î ‡`Lv‡bv e‡ji g‡Zv (iƒcK) `…k¨ ‰Zwi K‡i| eZ©gvb f¨vKyqvg Ae¯’v Av‡Q DcZ¨Kv A Gi f~wg‡Z| Z‡e mwZ¨Kv‡ii f¨vKyqvg Av‡Q DcZ¨Kv B Gi f~wg‡Z, hv A Gi bx‡P| f¨vKyqvg D”P kw³i A Ae¯’v ‡\_‡K wbgœ kw³i B Ae¯’vq ‡b‡g Avm‡Z PvB‡e| wKš‘ gvSLv‡b ÒcvnvoÓ ev ej ‡¶Î \_vKvq ‡mwU Kiv hv‡”Q bv| cvnvo G ¶q‡K evav w`‡jI ‡Kvqv›Uvg Uv‡bwjs c«fv‡ei Kvi‡Y cy‡ivcywi \_vwg‡q ivL‡Z cvi‡Q bv| A ‡\_‡K B DcZ¨Kvq myo½ ‡K‡U P‡j Avmv m¤¢e| GB ZË¡ mwVK n‡j gnvwek¦ avi Kiv mg‡qi g‡a¨ Ae¯’vb Ki‡Q| AvU‡K Av‡Q DcZ¨Kv A‡Z| wKš‘ myo½ w`‡q ‡h‡Kv‡bv mgq B DcZ¨Kvq P‡j hvIqvi GKwU m¤¢vebv memgq Av‡Q|

wPÎ 10.3

[bKj I mwZ¨Kv‡ii f¨vKyqvg Ae¯’v| n‡Z cv‡i dvuKv ¯’vb A Gi eZ©gvb ‡Kvqv›Uvg Ae¯’v me‡P‡q wbgœ kw³i Ae¯’v bq| nqZ GwU DuPy ‡Kv‡bv DcZ¨Kvi AvcvZ w¯’wZkxj Ae¯’vq Av‡Q| ‡m‡¶‡Î m¤¢vebv Av‡Q GwU myo½ c«fv‡ei gva¨‡g ¶‡q wM‡q mwZ¨Kv‡ii w¯’wZkxj M«vDÛ Ae¯’v B ‡Z ‡b‡g Avm‡e| eyØy‡`i ‰Zwii gva¨‡g NUv GB Ae¯’vš—i ‡\_‡K wecyj cwigvY kw³ wbM©Z n‡e|]

‡Kvjg¨vb I wW jywmqv MvwYwZKfv‡e f¨vKyqv‡gi ¶‡qi bgybv evwb‡q‡Qb| Rvb‡Z ‡P‡q‡Qb e¨vcviUv wVK Kxfv‡e N‡U| Zvuiv ‡`L‡jb, ¯’v‡bi GKwU ‰`e (random) Ae¯’v‡b ¶q ïi“ n‡e| Gi AvK…wZ n‡e mwZ¨Kv‡ii f¨vKyqv‡gi GKwU ¶y`« eyØy‡`i g‡Zv| GwU Aw¯’wZkxj bKj f¨vKyqvg Øviv ‡ewóZ \_vK‡e| mwZ¨Kv‡ii f¨vKyqv‡gi eyØy` ‰Zwi nIqv gvÎB GwU Lye `ª“Z c«mvwiZ n‡Z \_vK‡e| c«mvi‡Yi nvi P‡j Avm‡e Av‡jvi ‡e‡Mi KvQvKvwQ| hv µ‡gB bKj f¨vKyqv‡gi ‡ewk AÂ‡j ‡Q‡q hv‡e| Zvrw¶&YKfv‡e ‡mB AÂj¸‡jv mwZ¨Kv‡ii f¨vKyqv‡g cwiYZ n‡e| `yB Ae¯’vi ga¨Kvi kw³i cv\_©K¨ eyØy‡ei ‡`qv‡j ‡K›`«xf~Z \_vK‡e| Avi Ae¯’v¸‡jv nqZ n‡e Z…Zxq Aa¨v‡q Av‡jvwPZ eo eo gvb¸‡jvi g‡Zv| eyØy`¸‡jv nqZ gnvwek¦gq Ny‡i ‡eov‡e, MwZc‡\_i mewKQy aŸsm Ki‡Z Ki‡Z|

mwZ¨Kv‡ii eyØy‡`i ‡`qv‡ji K\_v Rvb‡Z Rvb‡Z ‡mUv Avgv‡`i `iRvq nvbv w`‡q ‡dj‡e| Avgv‡`i RM‡Zi ‡Kvqv›Uvg KvVv‡gv ûU K‡i cv‡ë hv‡e| Avgiv wZb wgwb‡Ui mZK© m‡¼ZI cve bv| gyn~‡Zi« g‡a¨ me AwZcvigvYweK KYv I Zv‡`i wg\_wl&µqv Avg~j cv‡ë hv‡e| ‡hgb ai“b, ‡c«vUb nqZ mv‡\_ mv‡\_ ¶q n‡q hv‡e| GUv NU‡j AvKw¯§Kfv‡e me e¯—y ev®úxf~Z n‡q hv‡e| hv wKQy evwK \_vK‡e, ‡mUv P‡j hv‡e mwZ¨Kv‡ii f¨vKyqv‡gi eyØy‡`i Af¨š—‡i| Avgiv eZ©gv‡b ‡hgb ‡`LwQ, ‡mUv n‡e Zvi ‡\_‡K LyeB wfbœ| gnvK‡li« ‡¶‡Î me‡P‡q ‡ewk cwieZ©b ‡Pv‡L co‡e| ‡Kvjg¨vb I W jywmqv ‡`‡L‡Qb, mwZ¨Kvi f¨vKyqv‡gi kw³ I Pvc GZ Zxe« gnvKl©xq ‡¶Î ‰Zwi Ki‡e ‡h eyØy` c«mvwiZ n‡Z n‡Z eyØy` w`‡q ‡Niv AÂj ‡f‡O co‡e| G‡Z mgq jvM‡e GK gvB‡µv‡m‡K‡ÛiI Kg| G‡¶‡Î gnvm‡¼vP‡bi w`‡K AM«hvÎv ‡Kvgj n‡e bv| eis ûU K‡i mewKQy aŸsm n‡q hv‡e| eyØy‡`i ‡fZiUv ¯’vbKv‡ji wms¸jvwiwU‡Z wM‡q ¸wU‡q hv‡e| GK K\_vq Zvr¶wYK GK m‡¼vPb NU‡e| ‡Rvi w`‡q wKš‘ mshZfv‡e Zvuiv ej‡Qb, GUv nZvkvRbK| Zvuiv AviI ej‡Qb,

Avgv‡`i bKj f¨vKyqv‡g evm Kivi m¤¢vebv‡K KL‡bvB Avbb`wP‡Ë M‡elYv Kivi welq g‡b nqwb| f¨vKyqv‡gi ¶q cwi‡e‡ki P~ovš— wech©q| f¨vKyqvg ¶‡qi c‡i Avgv‡`i ‡PbvRvbv c«v‡Yi Aw¯—Z¡B ïay Am¤¢e bq, Gi MvVwbK Dcv`vbI Am¤¢e| Z‡e mvš—¡bvi GKwU RvqMv Av‡Q| m¤¢eZ mg‡qi mv‡\_ mv‡\_ bZyb f¨vKyqvg w¯’wZkxj n‡e| Avgv‡`i ‡PbvRvbv c«v‡Yi Aw¯—Z¡ bv \_vK‡j Ggb wKQy KvVv‡gv nqZ \_vK‡e hviv Avb›` Dc‡fvM Ki‡Z Rvb‡e| G m¤¢vebvI GLb Avi ‡bB|

‡Kvjg¨vb I wW jywmqvi M‡elYvcÎ c«KvwkZ n‡j c`v\_©we` I ‡R¨vwZwe©`iv f¨vKyqvg ¶‡qi fqvbK djvdj wb‡q e¨vcK Av‡jvPbvq ‡j‡M hvb| ‡bPvi Rvb©v‡j Gi GKwU d‡jv-Avc c«KvwkZ nq| GUv ‡j‡Lb Km‡gvjwR÷ gvB‡Kj Uvb©vi I c`v\_©we` dª¨vsK DBjP‡hK| Zvuiv GKwU fqvbK djvdj ‡ei K‡ib, Ò¶y`« ¶y`« wRb‡mi AvPiY ‡\_‡K mn‡RB ‡evSv hv‡”Q, Avgv‡`i f¨vKyqvg‡K ev¯—‡e w¯’wZkxj g‡b n‡jI GwU Zv bq| ‡Kv‡bv AvMvg m‡¼Z QvovB gnvwe‡k¦i ‡Kv\_vI mwZ¨Kvi f¨vKyqv‡gi GKwU eyØy` ‰Zwi n‡q ‡h‡Z cv‡i| evB‡ii w`‡K Qwo‡q co‡Z cv‡i Av‡jvi MwZ‡Z|Ó

Uvb©vi I DBjP‡h‡Ki c«Kvkbvi ciciB wcU nvU I gvwU©b wiR ‡bPv‡iB Av‡iKwU AvZ‡¼i K\_v c«Kvk K‡ib| gnvwek¦‡K aŸsm K‡i ‡`Iqvi g‡Zv f¨vKyqvg eyØy` nqZ KYvc`v\_©we`ivB g‡bi ARv‡š— ‰Zwi K‡i ‡dj‡Z cv‡ib| fqUv n‡”Q, AwZcvigvYweK KYv‡`i Lye D”P kw³i msN‡l© nqZ Ggb Ae¯’v ‰Zwi n‡e hv‡Z f¨vKyqvg ¶q n‡q ‡h‡Z PvB‡e| nqZ ‡mUv Aí mg‡qi R‡b¨ ‡QvÆ RvqMvqB n‡e| AvYyex¶wYK RM‡ZI GKevi GB Ae¯’vš—i NU‡j bem…ó GB eyØy`‡K \_vgv‡bv hv‡e bv| Ly` `ª“Z GwU Qwo‡q eo n‡q hv‡e| Zvn‡j c‡ii c«R‡b¥i KYvZ¡iKhš¿¸‡jv wK wbwl× Kiv DwPZ? nvU I wiR Aek¨ Avk¦¯— Ki‡Qb| Zvuiv ej‡Qb, gnvRvMwZK iwk¥¸‡jv‡Z kw³ Avgv‡`i KYvZ¡iKhš¿¸‡jvi ‡P‡q ‡ewk nq| Avi gnvRvMwZK iwk¥¸‡jv wewjqb wewjqb eQi a‡i c…w\_exi evqygÊ‡ji cigvYyi ‡K›`«‡K AvNvZ K‡i P‡j‡Q| wKš‘ f¨vKyqvg ¶q ‡Zv Zv‡Z ïi“ nqwb| Z‡e Z¡iKh‡š¿i kw³ K‡qK k ¸Y evov‡Z cvi‡jB GZ w`b gnvRvMwZK iwk¥ c…w\_ex‡K ‡h kw³‡Z AvNvZ K‡i‡Q Zvi ‡P‡q ‡ewk ‡ZR¯^x msNl© m…wó Kiv m¤¢e n‡e| wKš‘ c…w\_ex‡Z eyØy` ‰Zwi n‡Z cv‡i wK bv ‡mUv Avmj welq bq| weM e¨vs‡qi c‡ii ‡Kv‡bv GK mg‡q GB NUbv ch©‡e¶Y‡hvM¨ gnvwe‡k¦i ‡Kv\_vI B‡Zvg‡a¨B N‡U ‡M‡Q wK bv ‡mUvB n‡jv Avmj K\_v| nvU I wiR e‡j‡Qb, kw³ eZ©gvb Z¡iKh‡š¿i ‡P‡q wewjqb wewjqb ¸Y ‡ewk Ggb `ywU gnvRvMwZK iwk¥i gy‡LvgywL av°vi jvMvi m¤¢vebv Lye Kg| AZGe, Z¡iKhš¿‡K eÜ K‡i ‡`Iqvi GLbB ‡Kv‡bv `iKvi ‡bB|

Ab¨ w`‡K Avevi ‡h eyØy‡`i ‰Zwii Kvi‡Y gnvwe‡k¦i Aw¯—Z¡ ûgwKi gy‡L, ‡mB eyØy`B GKUy wfbœ `…wó‡KvY ‡\_‡K gnvwe‡k¦i Awaevmx‡`i gyw³i GKgvÎ Dcvq n‡Z cv‡i| gnvwe‡k¦i g…Z¨y ‡\_‡K evuPvi GKwU wbwðZ Dcvq n‡jv Av‡iKwU gnvwek¦ ‰Zwi K‡i ‡mLv‡b cvwj‡q hvIqv| GUv nqZ Kíbvi ‡Nvovq me‡P‡q j¤^v jvMvg| Z‡e mv¤cÖwZK eQi¸‡jv‡Z Òwkï gnvwek¦Ó wb‡q Lye Av‡jvPbv n‡”Q| Avi G‡`i Aw¯—‡Z¡i Av‡jvPbv G‡Kev‡iB ‡Q‡jgvbywl bq|

1981 mv‡j welqwU c«\_g Av‡jvPbvq Av‡bb Rvcv‡bi GK`j c`v\_©we`| Zvuiv mwZ¨Kvi f¨vKyqvg w`‡q ‡ewóZ GKwU bKj f¨vKyqv‡gi ‡QvU eyØy‡`i AvPi‡Yi GKwU mij MvwYwZK we‡k­lY Pvjvb| GUv n‡jv GKUy Av‡M ejv Ae¯’vi wecixZ cwiw¯’wZ| Zvu‡`i c~e©vfvm ej‡Q, bKj f¨vKyqvg Z…Zxq Aa¨v‡q ewY©Z Dcv‡q ùxZ n‡e| GKwU weM e¨vs‡qi gva¨‡g GwU c«mvwiZ n‡q eo GKwU gnvwe‡k¦ iƒc jvf Ki‡e| c«\_g `…wó‡Z g‡b n‡e, bKj f¨vKyqv‡gi eyØy‡`i ùxwZi Kvi‡Y eyØy‡`i ‡`qvj GZ c«mvwiZ n‡e ‡h bKj f¨vKyqv‡gi AÂj eo n‡q mwZ¨Kvi f¨vKyqv‡gi AÂj‡KI `Lj Ki‡e| wKš‘ G‡Z K‡i c«Z¨vwkZ AvPi‡Yi D‡ëv NUbv N‡U| wbgœ kw³i mwZ¨Kvi f¨vKyqvgB ‡Zv D”P kw³i bKj f¨vKyqvg‡K mwi‡q ‡`Iqvi K\_v| D‡ëvUv ‡Zv nIqvi K\_v bq|

AvRe e¨vcvi n‡jv, mwZ¨Kvi f¨vKyqvg ‡\_‡K ‡`L‡j bKj f¨vKyqv‡gi eyØy‡`i `Lj Kiv AÂj‡K ‡`‡L ùxZ n‡”Q e‡j g‡b nq bv| mwZ¨ ej‡Z GUv‡K eis ‡`L‡Z e­¨vK‡nv‡ji g‡Zv g‡b nq| (G‡¶‡Î G‡K W±i û Gi UvBg ‡gwk‡bi UviwW‡mi g‡Zv jv‡M| hv‡K evB‡ii ‡P‡q ‡fZ‡i ‡\_‡K ‡`L‡j eo ‡`Lvq) bKj f¨vKyqvg eyØy‡`i ‡fZ‡i Ae¯’vb Kiv GKRb KvíwbK ch©‡e¶K gnvwek¦‡K e¨vcKfv‡e ùxZ n‡Z ‡`L‡e| wKš‘ evB‡i ‡\_‡K ‡`L‡j G‡K Lye m¼ywPZ g‡b n‡e|

GB A™¢yZ Ae¯’vUy eyS‡Z n‡j GKwU D`vniY Kv‡R jvM‡Z cv‡i| ai“b, GKwU ivev‡ii Pv`i GKwU RvqMvq dy‡j I‡V ‡ejy‡bi g‡Zv Qwo‡q ‡Mj (10.4 wPÎ ‡`Lyb)| GB ‡ejyb GK ai‡bi wkï gnvwek¦ ‰Zwi Ki‡e| GKwU ms‡hvRK myZv ev Iqvg©‡nv‡ji gva¨‡g GwU g~j gnvwe‡k¦i mv‡\_ hy³ \_vK‡e| g~j gnvwek¦ ‡\_‡K Iqvg©‡nv‡ji Mjv‡K e­¨vK‡nv‡ji g‡Zv g‡b n‡e| GB MVbUv Lye Aw¯’wZkxj| nwKs c«fv‡ei gva¨‡g e­¨vK‡nvjwU Lye `ª“Z wgwj‡q hvq| g~j gnvwek¦ ‡\_‡KI Lye `ª“Z cy‡ivcywi nvwi‡q hvq| d‡j Iqvg©‡nvjwU Avjv`v n‡q hvq| Avi wkï gnvwek¦ g~j gnvwek¦ ‡\_‡K Avjv`v n‡q wb‡RB n‡q hvq bZyb I GK ¯^Zš¿ gnvwek¦| g~j gnvwek¦ ‡\_‡K Kyuwoi R‡b¥i gva¨‡g GB wkï gnvwe‡k¦i ‰Zwii g‡Zv K‡iB Avgv‡`i gnvwe‡k¦i Rb¥ n‡q‡Q e‡j Abygvb KivI ‡h‡ZI cv‡i| nqZ Aí mg‡qi R‡b¨ ùxwZi c‡i ¯^vfvweKfv‡e c«mviY K‡g G‡mwQj| GB bgybv ¯úó K‡iB ej‡Q, Avgv‡`i gnvwek¦I nqZ Gfv‡eB G‡m‡Q| G‡m‡Q nqZ Ab¨ ‡Kv‡bv gnvwe‡k¦i mš—vb wn‡m‡e|

ùxwZ Z‡Ë¡i RbK A¨vjvb ¸\_ I Zvui mnKg©xiv we‡k­lY K‡i ‡`‡L‡Qb, Dc‡i ewY©Z wPÎ ‡\_‡K `vi“Y GKwU m¤¢vebv cvIqv hv‡”Q| cix¶vMv‡iB nqZ GKwU gnvwek¦ evbv‡bv hv‡e| bKj f¨vKyqvg ¶‡q wM‡q mwZ¨Kvi f¨vKyqv‡gi eyØy‡` cwiYZ nIqvi g‡Zv AvZ‡¼i e¨vcvi bq GwU| mwZ¨Kvi f¨vKyqvg w`‡q ‡ewóZ bKj f¨vKyqv‡gi eyØy` ‰Zwii NUbv gnvwe‡k¦i Aw¯—Z¡‡K ûgwKi gy‡L ‡d‡j bv| n¨vu, cix¶v Pvjv‡Z wM‡q GKwU weM e¨vs‡qi m~Pbv n‡q ‡h‡Z cv‡i| wKš‘ Gi we‡ùviY ¶y`« GKwU e­¨vK‡nv‡ji g‡a¨B mxgve× \_vK‡e| Avi e­¨vK‡nvjwU Lye `ª“ZB wgwj‡q hv‡e| bZyb gnvwek¦ wb‡RB wb‡Ri RvqMv evwb‡q ‡b‡e| Avgv‡`i ‡Kv‡bv ¯’vb ‡K‡o ‡b‡e bv|

wPÎ 10.4

g~j gnvwek¦ ‡\_‡K ‡ejy‡bi g‡Zv Qwo‡q wM‡q GKwU wkï gnvwek¦i Rb¥| g~j gnvwe‡k¦i mv‡\_ GKwU ms‡hvRK myZvi mvnv‡h¨ hy³ \_v‡K| g~j gnvwek¦ ‡\_‡K ZvKv‡j Iqvg©‡nv‡ji gyL‡K e­¨vK‡nvj g‡b n‡e| e­¨vK‡nvj wgwj‡q ‡M‡j Iqvg©‡nv‡ji Mjv wew”Qbœ n‡q hvq| d‡j m¤ú~Y© bZyb GKwU ¯^Zš¿ gnvwek¦ Rb¥jvf K‡i|

n¨vu, GB fvebvwU A‡bKLvwb Abygvbwbfi«| GwU cy‡ivcywi MvwYwZK Z‡Ë¡i Ici `vuwo‡q Av‡Q| Z‡e wKQy wKQy M‡elYv ej‡Q, GB c«wµqvq bZyb gnvwek¦ Rb¥jvf Ki‡ZI cv‡i| Lye h‡Zœi mv‡\_ wecyj cwigvY kw³‡K Nbxf~Z K‡i iwPZ n‡Z cv‡i gnvwek¦| Lye `~‡ii fwel¨‡Z Avgv‡`i wbR¯^ gnvwek¦ ev‡mi A‡hvM¨ n‡q ‡M‡j ev gnvaŸ‡mi m¤§yLxb n‡j Avgv‡`i eskaiiv wPiZ‡i GLvb ‡\_‡K P‡j ‡h‡Z cv‡i| Kyuwo c«wµqvi gva¨‡g bZyb gnvwek¦ iPbv K‡i ms‡hvRK Iqvg©‡nvj w`‡q ‡mB gnvwe‡k¦ ‡h‡Z n‡e| ‡mUvB nqZ n‡e P~ovš— cwihvb ev ¯’vbvš—i| Aek¨ ‡KDB wVK ej‡Z cvi‡eb bv Kxfv‡e wbf©xK c«vYxiv GB KvRwU Ki‡e| ev Av‡`Š cvi‡e wK bv| Kg K‡i ej‡jI GB Iqvg©‡nv‡ji ‡fZi w`‡q hvÎvUv n‡e ‡gv‡UI Avivg`vqK n‡e bv| hw` bv ‡h e­¨vK‡nv‡j Zviv XyK‡e ‡mwU Lye eo nq|

Gme ev¯—e welq¸‡jv ev` w`‡j wkï gnvwe‡k¦i aviYv wKš‘ mwZ¨Kv‡ii A¤^i‡Z¡i c\_ Ly‡j w`‡”Q| ïay Avgv‡`i eskai‡`i R‡b¨B bq, gnvwe‡k¦i R‡b¨I| gnvwe‡k¦i Rb¥-g…Z¨yi K\_v wPš—v Kivi e`‡j Avgv‡`i‡K GK ¸”Q gnvwek¦ wb‡q fve‡Z n‡e| wPiKvj hvi msL¨v ïay evo‡e| c«wZwU ‡\_‡K Rb¥ n‡e bZyb c«R‡b¥i AviI A‡bK A‡bK gnvwek¦| nqZ AmsL¨| gnvRvMwZK GB Dei«Zvi d‡j GB gnvwek¦¸‡jvi mgv‡ek—hv‡K ejv DwPZ ‡gUvfvm©—Gi ‡Kv‡bv ïi“ ev ‡kl \_vK‡e bv| c«wZwU gnvwe‡k¦iB Rb¥ \_vK‡e| weeZ©b \_vK‡e| g…Z¨y \_vK‡e| Av‡Mi Aa¨vq¸‡jv‡Z ‡hfv‡e ejv n‡q‡Q ‡mfv‡e| wKš‘ mvwe©Kfv‡e Zv‡`i ¸”Q wU‡K \_vK‡e wPiKvj|

GB wPÎ ‡\_‡K GKwU c«kœ ‰Zwi nq: Avgv‡`i gnvwek¦ wK c«vK…wZK ‡Kv‡bv NUbv (¯^vfvweKfv‡e wkïi R‡b¥i g‡Zv) bvwK ‡Kv‡bv B”Qvi ev¯—evqb (‡U÷wUDe wkïi g‡Zv)? Avgiv Kíbv Ki‡Z cvwi, g~j gnvwe‡k¦i GKwU h‡\_ó DbœZ I c‡ivcKvix RvwZ nqZ GKwU wkï gnvwek¦ ‰Zwii wm×vš— wb‡Z cv‡i| ‡mUv wb‡R‡`i wU‡K \_vKv wbwðZ Ki‡Z cvjv‡bvi e¨e¯’v Ki‡Z bq| eis wbR‡`i gnvwek¦ ‡kl n‡q ‡M‡jI Ab¨ RvqMvq c«v‡Yi Aw¯—Z¡‡K wUwK‡q ivLvi e¨e¯’v Ki‡Z| GUv n‡j wkï gnvwe‡k¦ hvIqvi R‡b¨ AwZµg‡hvM¨ Iqvg©‡nvj ‰Zwi Ki‡Z ‡M‡j ‡h Kó n‡e Zvi Avi ‡Kv‡bv `iKvi n‡e bv|

wkï gnvwek¦ g~j gnvwe‡k¦iB ‰ewkó¨ aviY Ki‡e Zv ejv hv‡”Q bv| c«K…wZi wewfbœ ej I e¯—yKYvi wewfbœ ‰ewkó¨¸‡jvi KviY m¤ú‡K© weÁvbxiv GLbI Rv‡bb bv| GB ‰ewkó¨¸‡jv nqZ c«K…wZi m~‡Îi Ask n‡Z cv‡i| ‡h¸‡jv nqZ memgq me gnvwe‡k¦i R‡b¨ KvR Ki‡e| Ab¨ w`‡K wKQy ‰ewkó¨ Avevi weeZ©‡bi d‡jI ‰Zwi n‡Z cv‡i| ‡hgb ai“b, ‡ek K‡qKwU mwZ¨Kvi f¨vKyqvg Ae¯’vi Aw¯—Z¡ \_vK‡Z cv‡i| hvi me¸‡jvi kw³ GKB iKg ev c«vq GKB iKg| ùxwZ hy‡Mi ‡k‡l bKj f¨vKyqvg ¶q n‡j nq‡Zvev GwU A‡bK¸‡jv m¤¢ve¨ f¨vKyqvg Ae¯’vi GKwU ‰`efv‡e ‡e‡Q ‡bq| gnvwe‡k¦i c`v\_©we`¨vi m~‡Îi K\_v ej‡Z n‡j ej‡Z nq, KYv I Zv‡`i g‡a¨ wµqvkxj e‡ji A‡bK ‰ewkó¨B wbw`©ó ai‡bi f¨vKyqvg Ae¯’vB wVK K‡i ‡`q| GKBfv‡e wbw`©ó K‡i ¯’v‡bi gvÎvi msL¨vI| d‡j wkï gnvwe‡k¦i ‰ewkó¨ g~j gnvwek¦ ‡\_‡K m¤ú~Y© Avjv`v n‡Z cv‡i| nqZ G¸‡jvi Aí K‡qKwU‡ZB ïay c«v‡Yi D™¢e NUv m¤¢e n‡e| ‡hLv‡b c`v\_©we`¨vi m~Î¸‡jv Avgv‡`i gnvwe‡k¦i g‡Zv ev KvQvKvwQ n‡e| A\_ev nqZ ¸Yvejxi avivevwnKZv i¶vi ‡Kv‡bv bxwZ Av‡Q, hvi gva¨‡g A™¢yZ wgD‡Ukb e¨ZxZ g~j gnvwe‡k¦i evwK ‰ewkó¨¸‡jv wkï gnvwe‡k¦ fv‡jvfv‡e mÂvwiZ nIqv wbwðZ nq| c`v\_©we` wj ‡¯§vwjb e‡j‡Q‡b, gnvwek¦¸‡jvi g‡a¨ nqZ GK ai‡bi WviDBbxq weeZ©b KvR K‡i \_vK‡Z cv‡i| hv c‡iv¶fv‡e c«vY I m‡PZbZvi Avwef©v‡ei mg\_©b ‡`q| Gi ‡P‡q gRvi GKwU m¤¢vebvI Av‡Q| gnvwek¦¸‡jv nqZ g~j gnvwe‡k¦i ‡Kv‡bv eyw×gvb mË¡vi B”Qvi c«wZdjb| G¸‡jv‡Z nqZ cwiKíbv K‡iB c«vY I m‡PZbZvi weKv‡ki R‡b¨ c«‡qvRbxq ‰ewkó¨¸‡jv w`‡q ‡`Iqv n‡q‡Q|

GB fvebv¸‡jv Lvg‡Lqvjx Abygvb gvÎ| wKš‘ Km‡gvjwR kvLvwUB ‡Zv Lye bZyb GKwU weÁvb| ZeyI Av‡Mi Aa¨vq¸‡jv‡Z ‡h AveQv c~e©vfvm ‡`Iqv n‡q‡Q, GB Kíbvc«eY K\_v¸‡jv Zvi wKQyUv n‡jI Aš—Z cwi®‹vi Ki‡e|G¸‡jv ‡\_‡K ejv hvq, GKw`b Avgv‡`i eskaiiv ‡kl wZwb wgwb‡Ui gy‡LvgywL n‡jI ‡Kv\_vI bv ‡Kv\_vI nqZ m‡PZb c«vYx‡`i Aw¯—Z¡ wU‡K \_vK‡Z cv‡i|

GMvik Aa¨vq

‡h c…w\_exi ‡kl ‡bB

gnvRvMwZK wech©q Gov‡bvi c\_ AbymÜv‡bi ‡¶‡Î Av‡Mi Aa¨v‡qi ‡k‡l Av‡jvwPZ K\_v¸‡jv QvovI AviI wKQy m¤¢vebv Av‡Q| gnvwe‡k¦i cwiYwZ wb‡q ‡jKPvi w`‡Z ‡M‡jB mvaviYZ ‡KD bv ‡KD Avgv‡K PµvKvi g‡Wj m¤ú‡K© wR‡Ám K‡ibB| gnvwek¦ GKwU m‡e©v”P mvBR ch©š— c«mvwiZ nq| Zvici ¸wU‡q gnvm‡¼vPb N‡U| wKš‘ cy‡ivcywi aŸsm nIqvi e`‡j GwU ‡Kv‡bvfv‡e jvwd‡q I‡V| ïi“ K‡i c«mviY I m‡¼vP‡bi Av‡iKwU Pµ (wPÎ 11.1 ‡`Lyb)| GB c«wµqv nqZ wPiKvj Pj‡Z cv‡i| ‡m‡¶‡Î gnvwe‡k¦i mwZ¨Kv‡ii ‡Kv‡bv ïi“ ev ‡kl \_vK‡e bv| c«wZwU Avjv`v Avjv`v P‡µi ¯^Zš¿ m~Pbv I ‡kl \_vK‡e hw`I| wn›`y I ‡eŠ× ag© Øviv c«fvweZ gvby‡li Kv‡Q GB ZË¡Uv we‡kl cQ‡›`i| ag©¸‡jv‡Z Rb¥-g…Z¨y I m…wó-aŸs‡mi Pµ ‡Rviv‡jvfv‡e Dc¯’vcb Kiv n‡q‡Q|

gnvwe‡k¦i ‡k‡li mg‡qi R‡b¨ `y‡Uv Lye Avjv`v wP‡Îi eY©bv w`‡qwQ Avwg| Gi ‡Kv‡bvUvB Avkvi Av‡jv ‡`Lvq bv| gnvaŸ‡mi gva¨‡g gnvwe‡k¦i wb‡R‡K aŸsm K‡i ‡`Iqvi m¤¢vebv Lye fq¼i K\_v| ‡mUv hZ w`b c‡iB NUyK bv ‡Kb Zv‡Z wKQy Av‡m hvq bv| Ab¨ w`‡K, GKwU wbw`©ó mgq ch©š— ¯^gwngvq mPj \_vKv gnvwe‡k¦i Amxg mgq ch©š— gwjb Ae¯’vq dvuKv n‡q c‡o \_vKvi welqUv Aek¨B gb Lvivc K‡i ‡`‡e| wKQy wKQy g‡Wj ‡\_‡K gnvc«vYx‡`i Z\_¨ c«‡m‡mi ‡h Amxg ¶gZv AR©‡bi m¤¢vebv ‡`Lv hvq ‡mUv nqZ Avgv‡`i Dò i‡³i gvby‡li Kv‡Q kxZj ¯^vš—bv g‡b n‡e|

wPÎ 11.1

[gnvwe‡k¦i PµvKvi g‡Wj| wbqwgZ weiwZ‡Z gnvwe‡k¦i AvKvi Lye Nb I Lye ùxZ Ae¯’vi g‡a¨ ¯úw›`Z nq| c«wZwU P‡µi ïi“ nq GKwU we‡ùvi‡Yi gva¨‡g| ‡kl nq m‡¼vP‡bi gva¨‡g| mg‡qi mv‡c‡¶ GwU ‡gvUvgywU c«wZmg|]

PµvKvi bgybv GK w`K ‡\_‡K Lye ‡jvfbxq| G‡Z gnvwek¦ cy‡ivcywi aŸsm n‡q hv‡”Q bv| gnvwe‡k¦i ‰ewkó¨¸‡jv wPiZ‡i nvwi‡q hvIqvi gva¨‡g Gi ¶q NU‡Q bv| Aweivg cybive…wË‡K e¨\_©Zv ‡\_‡K i¶v Ki‡Z n‡j c«wZwU Pµ‡K ‡Kv‡bvfv‡e Ab¨ Pµ¸‡jv ‡\_‡K Avjv`v n‡Z n‡e| ZË¡wUi GKwU Rbwc«q iƒc Abymv‡i c«wZwU bZyb Pµ Gi c~e© iƒ‡ci wbg©g g…Z¨y ‡\_‡K wdwb‡·i1 g‡Zv K‡i Avwef©~Z nq| Avw`g Ae¯’v ‡\_‡K GwU bZyb KvVv‡gv M‡o ‡Zv‡j| c‡ii gnvm‡¼vP‡b me ‡kl n‡q hvIqvi Av‡M GwUI wb‡Ri ¯^gwngv c«`k©b K‡i|

ZË¡Uv‡K ‡`‡L wKš‘ AvKl©YxqB g‡b nq| Z‡e `~f©v‡M¨i e¨vcvi n‡jv G‡Z gvivZ¥K wKQy ‡fŠZ mgm¨v Av‡Q| Gi GKwU n‡jv, Ggb GKwU M«nY‡hvM¨ c«wµqv Lyu‡R ‡ei Kiv hv m‡¼vPbkxj gnvwe‡k¦i NbZ¡ ‡e‡o ‡M‡j Zv‡K gnvm‡¼vP‡bi gva¨‡g aŸsm nIqv ‡\_‡K i¶v K‡i cybivq c«mvwiZ Kiv‡e| Gi Rb¨ gnvK‡li« wecix‡Z KvR Kiv ‡Kv‡bv ai‡bi ej Dcw¯’Z \_vK‡Z n‡e| m‡¼vP‡bi ‡k‡li ch©v‡q ‡hwU AwZgvÎvq eo n‡q DV‡e| hvi d‡j AZt‡ùvUb c«wµqv wecixZgyLx n‡e| c«wZnZ n‡e gnvK‡li« `yg‡o-gyP‡o ‡`Iqvi A`g¨ ¶gZv| eZ©gv‡b Ggb ‡Kv‡bv e‡ji K\_v Rvbv ‡bB| \_vK‡jI Gi ‰ewkó¨ nZ LyeB A™¢yZ|

Avcbv‡`i nqZ g‡b Av‡Q, weM e¨vs‡qi ùxwZ Z‡Ë¡ wVK Ggb kw³kvjx GK weKl©x e‡ji K\_vB ejv n‡q‡Q| Z‡e g‡b ivL‡Z n‡e, ‡h D‡ËwRZ f¨vKyqvg Ae¯’v ‡\_‡K ùxwZ ej ‰Zwi nq ‡mUv LyeB Aw¯’wZkxj| ‰Zwi nIqvi Aí mg‡qi g‡a¨B GwU aŸsm n‡q hvq| Aek¨ GUv mn‡RB ‡evSv hvq ‡h ¶y`«, mij I AcK¡ gnvwek¦ ‡Zv Ggb Aw¯’wZkxj Ae¯’vqB Rb¥ ‡b‡e| wKš‘ RwUj GK g¨v‡µv‡¯‹vwcK Ae¯’v ‡\_‡K m¼ywPZ n‡q gnvwek¦ me RvqMvq D‡ËwRZ f¨vKyqvg Ae¯’v wd‡i cv‡e— Ggb aviYv Kiv G‡Kev‡i wfbœ K\_v| e¨vcviUv GKUv ‡cwÝj‡K Gi AM«fv‡Mi Ici `vuo Kiv‡bvi g‡Zv| ‡cwÝjUv Lye `ª“Z KvZ n‡q c‡o hv‡e| ‡cwÝj‡K Avevi Av‡Mi g‡Zv gv\_vi Ici `vuo Kiv‡bv A‡bK KwVb KvR n‡e|

G mgm¨v¸‡jv Gov‡bv hv‡e a‡i wb‡jI PµvKvi gnvwe‡k¦i aviYvq AviI RwUjZv \_v‡K| wØZxq Aa¨v‡q Gi GKwU wb‡q Av‡jvPbv K‡iwQ| Ac«Z¨vMvgx c«wµqvq Pjv wm‡÷g¸‡jv mmxg nv‡i Pj‡Z \_vK‡j mmxg mg‡qi g‡a¨B Zv‡`i ‡kl Ae¯’vi w`‡K GwM‡q hv‡e| GB bxwZi gva¨‡gB Ebwesk kZ‡K gnvwe‡k¦i Zvcxq g…Z¨yi c~e©vbygvb Kiv n‡qwQj| gnvRvMwZK P‡µi aviYv wb‡q G‡jI GB mgm¨vwU ‡\_‡KB hvq| gnvwek¦‡K µ‡gB axi MwZ‡Z Pjv GKwU Nwoi mv‡\_ Zyjbv Kiv hvq| GK mgq Awbevh©fv‡e Gi Kvh©µg ‡kl n‡q hv‡e| hw` bv Gi Kvh©µg cybivq ïi“ nq| wKš‘ ‡Kvb ‡m ‡KŠkj ‡h wb‡R Ac«Z¨vMvgx cwieZ©b ‡\_‡K wb‡R‡K evuwP‡q gnvRvMwZK Nwoi cybive…wË Kiv‡e?

c«\_g `…wó‡Z g‡b n‡e ‡fŠZ c«wµqv¸‡jv ‡hfv‡e D‡ëvw`‡K KvR K‡i ‡Zgwbfv‡eB gnvwe‡k¦i m‡¼vPb ch©vq c«mviY ch©v‡qi g‡ZvB n‡e| wew¶ß n‡Z \_vKv Qvqvc\_¸‡jv Kv‡Q P‡j Avm‡Z eva¨ n‡e| kxZj n‡Z \_vKv cUf~wg wewKiY AveviI DËß n‡e| Avi RwUj c`v\_©¸‡jv ‡f‡O wM‡q ‡gŠwjK KYvi m¨y‡c cwiYZ n‡e| weM e¨vs‡qi wVK c‡i gnvwe‡k¦i ‡h Ae¯’v wQj, gnvm‡¼vP‡bi wVK Av‡MI c«vq GKBiKg Ae¯’v n‡e| Z‡e ‡`‡L GgbUv g‡b n‡jI ev¯—‡e wKš‘ GUv n‡e bv| gnvwe‡k¦i ‡cQ‡b ‡Nvivi mg‡qi ‡R¨vwZwe©`‡`i ch©‡e¶Y ‡Kgb n‡e ‡mUv ‡\_‡K Avgiv GKwU aviYv ‡c‡Z cvwi| ‡m mgq c«mviY eÜ n‡q m‡¼vPb Pj‡Z \_vK‡e| d‡j ‡m mg‡qi ‡R¨vwZwe©` wKš‘ ZLbI ‡`L‡eb, eû wewjqb eQi a‡i Qvqvc\_iv `~‡i mi‡Q| ‡`‡L g‡b n‡e, gnvwek¦ c«mvwiZ n‡qB P‡j‡Q| hw`I Avm‡j m‡¼vPb ïi“ n‡q ‡M‡Q| GB fy‡ji KviY Av‡jvi ‡eM mmxg nIqvq mwZ¨Kvi NUbv ‡Pv‡L Avm‡Z mgq ‡j‡M hv‡”Q|

1930 Gi `k‡K Km‡gvjwR÷ wiPvW© ‡Uvjg¨vb ‡`Lvb, Kxfv‡e GB Kvi‡Y gnvwe‡k¦i AvcvZ c«wZmvg¨ bó n‡”Q| KviYUv Lye mij| gnvwe‡k¦i ïi“i mgq weM e¨vs ‡\_‡K c«Pyi cwigvY Zvc wewKiY aŸsmve‡kl wn‡m‡e ‡\_‡K hvq| mg‡qi mv‡\_ mv‡\_ b¶‡Îi Av‡jvi c«fv‡e GB wewKiY AviI ev‡o| K‡qK wewjqb eQi c‡i gnvk~‡b¨ Qwo‡q cov b¶‡Îi Av‡jvi RgvK…Z kw³ cUf~wg Zv‡ci mgvb nq| Gi A\_© n‡jv, m‡¼vP‡bi w`‡K GwM‡q hvIqvi mgq gnvwek¦Ry‡o weM e¨vs‡qi wVK c‡ii mg‡qi ‡P‡q j¶¨Yxq iKg ‡ewk cwigvY wewKiY kw³ Dcw¯’Z \_v‡K| d‡j gnvwek¦ Avevi hLb m¼ywPZ n‡q AvR‡Ki Ae¯’vq Avm‡e ZLb Gi DËvc Av‡iKUy ‡ewk \_vK‡e|

GB evowZ Zvckw³i ‡hvMvb ‡`q gnvwe‡k¦i ‡fŠZ Dcv`vb¸‡jv| GUv KvR K‡i AvBb÷vB‡bi E=mc2 m~Î w`‡q| Zvckw³ ‰Zwi Kiv b¶‡Îi ‡fZ‡i nvB‡W«v‡R‡bi g‡Zv nvjKv ‡gŠj¸‡jv c«‡mm n‡q Avqib ev ‡jvnvi g‡Zv fvix ‡gŠ‡j cwiYZ nq| mvaviYZ Avqi‡bi GKwU wbDwK¬qv‡m 26wU ‡c«vUb I 30wU wbDU«b \_v‡K| Avcbvi nqZ g‡b n‡e, Zvn‡j ‡Zv Ggb GKwU wbDwK¬qv‡mi fi n‡e 20wU ‡c«vUb I 30wU wbDU«‡bi f‡ii mgvb| wKš‘ bv| Gfv‡e ‰Zwi wbDwK¬qv‡mi fi Avjv`v KYv `ywUi wgwjZ f‡ii 1 fvM Kg nq| f‡ii GB NvUwZ n‡q‡Q mej wbDwK¬q e‡ji eÜb kw³ ‰Zwi Ki‡Z wM‡q| GB kw³ wn‡m‡e Dcw¯’Z \_vKv fiUyKyB b¶‡Îi kw³ wn‡m‡e wbM©Z nq|

GZme wKQyi dj n‡”Q e¯—y ‡\_‡K wewKi‡Y kw³i wbU iƒcvš—i| gnvwe‡k¦i c«mviY c«wµqvi Ici Gi GKwU ¸i“Z¡c~Y© c«fve Av‡Q| KviY wewKi‡Y gnvKl©xq Uvb GKB fi kw³i c`v‡\_i« Uvb ‡\_‡K GK`gB Avjv`v| ‡Uvjg¨vb ‡`wL‡q‡Qb, m‡¼vPb ch©v‡qi evowZ wewKi‡Yi Kvi‡Y gnvwek¦ ¸wU‡q hvq AviI `ª“Z ‡e‡M| Avi ‡Kv‡bvfv‡e hw` AviI GKevi wecixZ c«wµqv ïi“ nq, Zvn‡j ‡`Lv hv‡e gnvwek¦ c«mvwiZ n‡”Q AviI `ª“Z nv‡i| Ab¨fv‡e ej‡j, c«wZwU weM e¨vs Av‡MiwUi ‡P‡q eo n‡e| d‡j c«wZwU bZyb P‡µ gnvwek¦ Av‡Mi ‡P‡q ‡ewk c«mvwiZ n‡e| d‡j Pµ¸‡jv GKBmv‡\_ eo I `xN©¯’vqx n‡e| (‡`Lyb 11.2 wbs wPÎ)|

gnvRvMwZK P‡µi e…w×i Ac«Z¨vMvgx c«wµqvi inm¨I Rvbv| GUvI ZvcMwZwe`¨vi wØZxq m~‡Îi Awbevh© cwiYwZi GKwU D`vniY| ax‡i ax‡i evo‡Z \_vKv wewKi‡Yi d‡j ev‡o GbU«wcI| Gi c«Kvk N‡U gnvKl©xqfv‡e µgkB eo ‡\_‡K AviI eo Pµ ‰Zwii gva¨‡g| Z‡e Gi gva¨‡g wKš‘ mwZ¨Kvi A‡\_© Pµ ej‡Z hv ‡evSvq ZviI Aemvb N‡U| mg‡qi mv‡\_ mv‡\_ Aek¨B gnvwe‡k¦ cwieZ©b N‡U| AZx‡Zi Pµ¸‡jv G‡Ki ci GK RwUj I wek…•Lj m~Pbvi Rb¥ w`‡q‡Q| Avi fwel¨‡Zi Pµ c«mvwiZ n‡e jvMvgnxbfv‡e| GKmgq GwU GZ eo n‡e ‡h GKwU wbw`©ó P‡µi eo Ask‡K wPic«mvigvb wP‡Îi Zvcxq g…Z¨y ‡\_‡K Avjv`v K‡i ‡Pbv hv‡e bv|

‡Uvjg¨v‡bi Kv‡Ri c‡iI weÁvbxiv Ggb Ab¨ wKQy c«wµqvI Lyu‡R ‡c‡q‡Qb hv c«wZwU P‡µi c«mviY I m‡¼vP‡bi c«wZmvg¨ bó K‡i ‡`q| Gi GKwU D`vniY n‡jv e­¨vK‡nv‡ji m…wó| Av`k© Ae¯’v wPš—v Ki‡j, gnvwe‡k¦i Rb¥ nq e­¨vK‡nvj Qvov| wKš‘ mg‡qi mv‡\_ mv‡\_ b¶Îiv m¼ywPZ nq| Avi Ab¨ c«wµqvqI ‰Zwi nq e­¨vK‡nvj| Qvqvc‡\_i weeZ©‡bi mv‡\_ mv‡\_ AviI AviI e­¨vK‡nvj ‰Zwi n‡Z \_v‡K| m‡¼vP‡bi ‡kl ch©vq¸‡jv‡Z AviI ‡ewk e­¨vK‡nvj ‰Zwii cwi‡ek ‰Zwi nq| wKQy e­¨vK‡nvj wgwjZ n‡q eo e­¨vK‡nvjI ‰Zwi nq| d‡j gnvm‡¼vP‡bi KvQvKvwQ mg‡qi gnvwe‡k¦i Ae¯’v weM e¨vs‡qi c‡ii mgq ‡\_‡K A‡bK ‡ewk RwUj| GUv cwi®‹vi ‡h m‡¼vP‡bi mgq A‡bK ‡ewk e­¨vK‡nvj \_vK‡e| gnvwe‡k¦i Pµ bZyb K‡i ïi“ n‡j c‡ii Pµ A‡bK ‡ewkmsL¨K e­¨vK‡nvj wb‡q hvÎv ïi“ Ki‡e|

wPÎ 11.2

[Ac«Z¨vMvgx c«wµqvi Kvi‡Y gnvRvMwZK Pµ µ‡gB eo n‡Z \_v‡K| d‡j GKmgq Pµ ej‡ZB wKQy \_v‡K bv|]

d‡j g‡b n‡”Q ‡h Pµxq gnvwe‡k¦ GK Pµ ‡\_‡K c‡ii P‡µ ‡fŠZ KvVv‡gv ¯’vbvš—wiZ n‡Z cv‡i Zvi R‡b¨ ZvcMwZwe`¨vi wØZxq m~‡Îi ‰ewkó¨¶qKvix c«fve Gwo‡q Pjv m¤¢e bq| GLv‡bI Zvcxq g…Z¨y NU‡e| GB nZvkvRbK cwiYwZ ‡iva Kivi GKwU DcvqI Av‡Q| ‡mR‡b¨ a‡i wb‡Z n‡e, c«wZwU bZyb P‡µi ‡fŠZ Ae¯’v GZ Pig ‡h Av‡Mi P‡µi ‡Kv‡bv Z\_¨ c‡ii P‡µ ‡cŠuQ‡Z cv‡i bv| Av‡Mi me ‡fŠZ e¯—y aŸsm n‡q hvq| me c«fve bó n‡q hvq| e¯—yZ, gnvwek¦ G‡Kev‡i bZyb K‡i Rb¥jvf K‡i|

Ggb GKwU g‡W‡j AvKl©Yxq ‡Kv‡bv w`K Lyu‡R cvIqv gykwKj| c«wZwU Pµ ‡fŠZfv‡e Ab¨ Pµ ‡\_‡K Avjv`v n‡q \_vK‡j GK P‡µi c‡i Av‡iK Pµ Av‡m—Ggb K\_v ejvi wK ‡Kv‡bv A\_© \_v‡K? ev¯—e ‡Zv c«wZwU PµB Avjv`v Avjv`v gnvwek¦| Gfv‡eI ‡Zv ejv hvq ‡h G¸‡jv G‡Ki ci GK bv ‡\_‡K Ae¯’vb K‡i mgvš—iv‡j| GB Ae¯’vwU cybR©b¥ev‡`i K\_v g‡b Kwi‡q ‡`q, ‡hLv‡b c«wZwU gvbyl Av‡Mi R‡b¥i K\_v fy‡j hvq| Zvn‡j ‡Kvb A‡\_© ejv hv‡e ‡h Av‡Mi gvbylwUi cybR©b¥ n‡q‡Q?

Av‡iKwU m¤¢vebv n‡jv, ‡Kv‡bvfv‡e ZvcMwZwe`¨vi wØZxq m~Î jw•NZ n‡”Q| d‡j ‡cQ‡b ‡Nvivi mgq bZyb K‡i Nwo bZyb K‡i ïi“ n‡”Q| wØZxq m~Î ‡h aŸsmhÁ NUv‡e ‡mUvi ¶wZc~iY m¤ú‡K© GwU Zvn‡j Kx ej‡Q? m~ÎwUi GKwU ev¯—e D`vniY ‡`Lv hvK| ‡evZj ‡\_‡K myMwÜi D‡e hvIqvi K\_vB ai“b bv| myMwÜi AvPiY cv‡ë ‡M‡j GKwU Avg~j cwieZ©b NU‡e| ‡hLv‡b N‡i c«wZwU ‡KvYvq Ae¯’vb Kiv myMwÜi AYy¸‡jv wd‡i Avm‡e ‡evZ‡j| Pjw”PÎ Pj‡e D‡ëv w`‡K| ZvcMwZwe`¨vi wØZxq m~Î ‡\_‡KB Avgiv AZxZ I fwel¨‡Zi cv\_©K¨ eyS‡Z cvwi| hvi bvg mg‡qi Zxi| Zvi gv‡b GB m~‡Îi e¨Z¨q NU‡j mgq Pj‡Z ïi“ Ki‡e D‡ëv w`‡K|

wech©q P‡j G‡j mgq ‡cQ‡b Pj‡Z ïi“ Ki‡e g‡b KivUv gnvRvMwZK g…Z¨y‡K Gwo‡q hvevi wKQyUv mv`vgvUv GKwU ‡KŠkj| mgq Lvivc n‡q ‡M‡j gnvRvwZK Pjw”PÎUv‡K ‡cQb w`‡K Pvwj‡q `vI, e¨m! Z‡e GB wPš—vUv‡KI A‡bK Km‡gvjwR÷ M«nY K‡i‡Qb| 1960 Gi `k‡K ‡R¨vwZc©`v\_©we` \_gvm ‡Mvì Ggb GKwU c«¯—vebv w`‡qwQ‡jb| Zvui g‡Z, cybivq m‡¼vPbkxj gnvwe‡k¦i m‡¼vPb `kvq gnvwek¦ nqZ ‡cQ‡b Pj‡Z ïi“ Ki‡e| wZwb g‡b Kwi‡q ‡`b, Gi d‡j wKš‘ ‡mB mgq RxweZ \_vKv c«vYx‡`i gw¯—®‹I ‡cQ‡b Pj‡e| d‡j Zv‡`i Kv‡Q mg‡qi aviYvI wecixZ n‡q hv‡e| d‡j m‡¼vPbkxj gnvwe‡k¦i c«vYxiv Zv‡`i Pvicv‡ki mewKQy‡K ‡cQ‡b Pj‡Z ‡`L‡e bv| eis Avgv‡`i g‡ZvB mewKQy‡K mvg‡b GwM‡q ‡h‡Z ‡`L‡e| ‡hgb, Zviv g‡b Ki‡e gnvwek¦ m¼ywPZ bq, c«mvwiZ n‡”Q| Zv‡`i ‡Pv‡L g‡b n‡e, Avgv‡`i mg‡qi gnvwek¦B m¼ywPZ nw”Qj| Avi Avgv‡`i gw¯—®‹B KvR KiwQj wecixZ w`‡K|

1980'i `k‡K w÷‡db nwKsI mg‡qi D‡ëv w`‡K ‡Nviv wb‡q wKQy gRvi KvR K‡ib| c‡i ‡mB wPš—v ‡\_‡K m‡i Av‡mb| Avi e‡jb, ‡mUv wQj Zvi me‡P‡q eo fyj| c«\_‡gi nwKs‡qi wek¦vm wQj, PµvKvi gnvwe‡k¦ ‡Kvqv›Uvg ‡gKvwb· c«‡qvM Ki‡Z ‡M‡j we¯—vwiZ mgq c«wZmvg¨ `iKvi n‡e| c‡i ‡`Lv ‡Mj, welqUv ‡Zgb bq| ‡Kvqv›Uvg ‡gKvwb‡·i Av`k© m~Îvqb Aš—Z Ggwb e‡j| m¤cÖwZ gv‡i ‡Mj g¨vb I ‡Rgm nvU©j ‡Kvqv›Uvg ‡gKvwb‡·i m~Î¸‡jv‡K GKUy wfbœfv‡e wPš—v K‡i‡Qb| GLv‡b Zviv mgq c«wZmvg¨ hy³ K‡i‡Qb| Gici c«kœ ‡i‡L‡Qb, GB Ae¯’v Avgv‡`i gnvRvMwZK mgqKv‡j ch©‡e¶Y‡hvM¨ ‡Kv‡bv c«fve ivL‡e wK bv| GLb ch©š— Gi DËi cwi®‹vi bq|

gnvRvMwZK wech©q Gov‡bvi m¤ú~Y© wfbœ GKwU Dcvq e‡j‡Qb i“k c`v\_©we` Av‡›`«B wj‡Û| Z…Zxq Aa©v‡q Av‡jvwPZ ùxwZ ZË¡‡K we¯—…Z K‡i DcvqwU fvev n‡q‡Q| g~j ùxwZ Z‡Ë¡ a‡i ‡bIqv n‡q‡Q Lye c«viw¤¢K gnvwe‡k¦i ‡Kvqv›Uvg Ae¯’v GKwU wbw`©ó D‡ËwRZ f¨vKyqv‡g mv‡\_ m¤úwK©Z| hvi c«fv‡e wKQy mgq a‡i e¨vcK c«mviY N‡UwQj| 1983 mv‡j wj‡Û e‡jb, G‡Kev‡i c«v\_wgK gnvwe‡k¦i ‡Kvqv›Uvg Ae¯’v eis wek…•Lj Dcv‡q RvqMv‡f‡` Avjv`v n‡Z cv‡i| ‡Kv\_vI wbgœ kw³, ‡Kv\_vI ‡gvUvgywU D‡ËwRZ Ae¯’v, ‡Kv\_vI Avevi A‡bK ‡ewk D‡ËwRZ BZ¨vw`| D‡ËwRZ AÂ‡j ùxwZ N‡U| GQvovI ‡Kvqv›Uvg Ae¯’vi AvPiY wb‡q Kiv wj‡Ûi wn‡m‡e cwi®‹vifv‡e ‡`Lv hvq, AwZ D‡ËwRZ AÂ‡j me‡P‡q ‡ewk ùxwZ N‡U| Avi ¶q N‡U me‡P‡q Kg| Zvi gv‡b ‡Kv‡bv GKwU wbw`©ó AÂj hZ ‡ewk D‡ËwRZ \_vK‡e ‡mwU ZZ ‡ewk ùxZ n‡e| ‡evSvB hv‡”Q, Lye Aí mgq mgq c‡iB ‡h AÂ‡j NUbvµ‡g kw³ ‡ewk I ùxwZ me‡P‡q `ª“Z N‡U‡Q ‡mwU Lye ZvovZvwo ùxZ n‡q ‡gvU ¯’v‡bi ‡ewkifvM Ask `Lj K‡i ‡dj‡e| wj‡Û welqUv‡K WviDBbxq weeZ©b ev A\_©bxwZi mv‡\_ Zyjbv K‡ib| ‡Kv‡bv ¯’v‡bi Lye D‡ËwRZ GKwU Ae¯’vi GKwU mdj ‡Kvqv›Uvg d¬vKPy‡qk‡bi d‡j ‡mB ¯’v‡bi AvqZb ûU K‡i A‡bK A‡bK ‡e‡o hv‡e| hw`I ‡m R‡b¨ c«Pyi kw³ avi Ki‡Z n‡e| d‡j avi Kiv kw³i GB AwZùxZ AÂj¸‡jvB gnvwe‡k¦ ‡ewk \_vK‡e|

wek…•Lj GB ùxwZi Kvi‡Y Aí mg‡qi g‡a¨B gnvwek¦ A‡bK¸‡jv ‡QvU ‡QvU gnvwe‡k¦i ev eyØy‡`i GKwU ¸‡”Q cwiYZ n‡e| wKQy wKQy ùxwZ n‡e cvM‡j g‡Zv| wKQy wKQy Avevi GKUyI ùxZ n‡e bv| wbQK G‡jv‡g‡jv d¬vKPy‡qk‡bi Kvi‡Y wKQy wKQy GjvKvq A‡bK ‡ewk D‡ËwRZ kw³ \_vK‡e| d‡j ‡mBme GjvKvq c«v\_wgK m~‡Î hZUv g‡b Kiv n‡q‡Q Zvi ‡P‡q ‡ewk ùxwZ n‡e| Avevi GB ¯’vb¸‡jvB me‡P‡q ‡ewk ùxZ n‡e e‡j ùxwZ-DËi gnvwek¦ ‡\_‡K ‰`efv‡e GKwU we›`y evQvB Ki‡j ‡mwU Lye ùxZ AÂ‡j \_vKvi m¤¢vebvB ‡ewk| AZGe gnvk~‡b¨ Avgiv nqZ AwZùxZ GKwU AÂ‡ji Mfx‡i Aew¯’Z AvwQ| wj‡Ûi wn‡me Abymv‡i, eo eyØy` nqZ 10 10^8 ¸Y eo n‡q‡Q| gv‡b 1 Gi c‡i 10 ‡KvwU k~b¨ w`‡j ‡h msL¨v nq ZZ ¸Y|

Amxg msL¨K AwZùxZ eyØy‡`i g‡a¨ Avgv‡`i gnvwek¦I GKwU| d‡j eo gvcKvwV‡Z wPš—v Ki‡j Avgv‡`i gnvwek¦‡KI e¨vcK wek…•Lj g‡b n‡e| Avgv‡`i eyØy`wU eZ©gv‡b ch©‡e¶Y‡hvM¨ gnvwe‡k¦i ‡P‡q A‡bK A‡bK eo| eyØy‡`i Af¨š—‡i c`v\_© I kw³ c«vq mylgfv‡e web¨¯— \_vK‡e| wKš‘ eyØy‡`i evB‡i \_vK‡e Ab¨ AviI eyØy`| GQvovI \_vK‡e Ggb AÂj, ‡hLv‡b GLbI ùxwZ Pj‡Q| Avm‡j wj‡Ûi g‡W‡j ùxwZ KL‡bvB \_v‡g bv| memgqB ‡Kv‡bv bv ‡Kv‡bv ¯’v‡b ùxwZ Pj‡ZB \_v‡K| Ab¨ eyØy` ‰Zwi n‡Z \_v‡K| hw`I ZZ¶‡Y Ab¨ eyØy`iv RxebKvj ‡kl K‡i g‡i hv‡”Q| d‡j GUvI GK ai‡bi wPiš—b gnvwek¦| Av‡Mi Aa¨v‡q Av‡jvwPZ wkï gnvwe‡k¦i g‡Zv A‡bKUv| ‡hLv‡b Rxeb, Avkv I gnvwek¦iv c«wZwbqZ Rb¥jvf K‡i| ùxwZi gva¨‡g bZyb eyØy` gnvwek¦ ‰Zwi Pj‡ZB \_v‡K| Gi nqZ ‡Kv‡bv wbw`©ó m~Pbv wQj bv| Aek¨ GUv wb‡q eZ©gv‡b wKQy weZK© Av‡Q|

Ab¨ eyØy‡`i Dcw¯’wZi Kvi‡Y Avgv‡`i eskaiiv wK wU‡K \_vKvi AbyK~j cwi‡ek cv‡e? Zviv wK gviv hv‡ei Av‡M Av‡M Ab¨ bZyb eyØy‡` m‡i wM‡q gnvRvMwZK wech©q, ev AviI mwVK K‡i K‡i ej‡j eyØy`xq wech©q, ‡\_‡K i¶v cv‡e? jvBd A¨vÛ Bb‡d¬kb bv‡g GKwU ex‡ivwPZ M‡elYvc‡Î wj‡Û GB welqwU Av‡jvPbv K‡ib| GUv c«KvwkZ nq 1989 mv‡ji wdwR· ‡jUvim Rvb©v‡j| wZwb e‡jb, ÒGB djvdj¸‡jv ej‡Q, ùxwZ gnvwe‡k¦ Rxe‡bi Aemvb KLbI n‡e bv| `~f©vM¨ n‡jv, GUv ‡\_‡K e‡j ‡`Iqv hv‡”Q bv ‡h gvby‡li fwel¨r wb‡q Avgiv Lye Avkvev`x n‡Z cvie| ‡h‡Kv‡bv wbw`©ó AÂj ev eyØy`B ax‡i ax‡i ev‡mi A‡hvM¨ n‡q hv‡e| d‡j wU‡K \_vKvi GKgvÎ ‡KŠkj n‡e aŸs‡mi mgq Nwb‡q G‡j GK AÂj ‡\_‡K Av‡iK AÂ‡j P‡j hvIqv|"

wj‡Ûi ùxwZ Z‡Ë¡ GKwU nZvkvRbK w`K Av‡Q| ‡mUv n‡jv GKwU Av`k© eyØy` A‡bK A‡bK eo| Zvui wnmve g‡Z, Avgv‡`i me‡P‡q Kv‡Qi eyØy` GZ `~‡i Av‡Q ‡h Av‡jvKel© GK‡K Zv c«Kvk Ki‡Z n‡j 1 Gi c‡i K‡qK wgwjqb k~b¨ emv‡Z n‡e| GUv GZ eo msL¨v ‡h G‡K wjL‡Z ‡M‡j cy‡iv GKwU wek¦‡Kv‡li cvZv ‡kl n‡q hv‡e| Av‡jvi ‡e‡Mi KvQKvwQ ‡e‡M ‡M‡jI GB `~iZ¡ cvwo w`‡Z c«vq GKB cwigvY eQi mgq jvM‡e| hw` bv ‡mŠfvM¨µ‡g Avgiv Avgv‡`i eyØy‡`i G‡Kev‡i c«v‡š—i w`‡K Ae¯’vb K‡i \_vwK| GUvI m¤¢e n‡e hw` Avgv‡`i gnvwek¦ AbywgZ c×wZ‡Z c«mvwiZ n‡Z \_v‡K| eZ©gvb mg‡q c«KU f~wgKv ivLv c`v\_© I wewKiY Amxg cwigvY nvjKv n‡q ‡M‡j eZ©gv‡b G‡Kev‡iB ‡evSv m¤¢e bq Ggb me‡P‡q m~² ‡Kv‡bv ‡fŠZ c«fv‡ei IciB nqZ ‡kl ch©š— gnvwe‡k&eŸi c«mvi‡Y ‡KŠkj wbfi« Ki‡e| ‡hgb ai“b, ùxwZ e‡ji Lye `ye©j GKwU aŸsmve‡kl gnvwe‡k¦ ‡\_‡K ‡Mj| gnvK‡li« Kvi‡Y ‡hUv GLb G‡Kev‡i \_g‡K Av‡Q| wKš‘ eyØy` ‡\_‡K cvjv‡Z Avgv‡`i ‡h cwigvY mgq jvM‡e Zv‡Z nqZ ‡mB aŸsmve‡kl Avevi j¶¨Yxq n‡q DV‡e| ‡m‡¶‡Î nqZ h‡\_ó `xN© mgq ci gnvwek¦ AveviI ùxZ n‡Z ïi“ Ki‡e| weM e¨s‡qi c‡ii ‡mB mg‡qi g‡Zv GZ c«PÊfv‡e bq| eis Lye ax‡i| ejv hvq ‡h weM e¨vs‡qi GKwU ¶xY bgybvi g‡Zv| wKš‘ ¶xY GB c«fve `ye©j n‡jI GUv Pj‡e Abš—Kvj| gnvwe‡k¦i e…w×i Lye ax‡i ax‡i evo‡jI eo n‡q hvIqvi GB nvi ‡e‡o hvIqvi ‡fŠZ c«fve Lye ¸i“Z¡c~Y©| Gi c«fv‡e eyØy‡`i g‡a¨B GKwU NUbv w`M‡š—¡i D`q n‡e| ‡hUv‡K ‡`L‡Z A‡bKUv e­¨vK ‡nv‡ji g‡Zv g‡b n‡e, hvi ‡fZiUv \_vK‡e evB‡ii w`‡K| GwU GKwU djc«m~ dvu` wn‡m‡e KvR Ki‡e| ZLbI ‡eu‡P \_vKv ‡h‡Kv‡bv Rxe Avgv‡`i eyØy‡`i ‡fZ‡ii Amnvqfv‡e AvU‡K \_vK‡e| KviY Zviv hZB eyØy‡`i evB‡ii w`‡K ‡h‡Z \_vK‡e, eyØy‡`i c«vš— ùxwZi c«fv‡e ZZB `ª“Z AviI m‡i ‡h‡Z \_vK‡e| wj‡Ûi wnmve-wbKvk GKUy KvíwbK| Z‡e GLv‡b Lye my›`i K‡i ‡`Lv‡bv Av‡Q ‡h gvby‡li P~ovš— wbqwZ nqZ Lye ¶y`« ‡fŠZ c«fv‡ei Ici wbfi« Ki‡e| ‡m c«fve GZ ‡QvU ‡h gnvRMvwZK ch©v‡q ‡mwUi ewntc«Kvk ‡Pv‡L covi Av‡M Avgiv Zv‡K kbv³I Ki‡Z cvie bv|

wKQy w`K ‡\_‡K fve‡j wj‡Ûi Km‡gvjwR cyivZb w¯’ive¯’v Z‡Ë¡i K\_v g‡b Kwi‡q ‡`q| cÂvk I lv‡Ui `k‡Ki ïi“‡Z ZË¡wU Lye Rbwc«q wQj| gnvwe‡k¦i mgvwß Gov‡bvi R‡b¨ GUv GLbI me‡P‡q mij I AvKl©Yxq ZË¡| Gi g~j ms¯‹i‡Yi c«¯—veK n‡jb nvig¨vb ew›` I \_gvm ‡Mvì| GB Z‡Ë¡i g‡Z, eo KvVv‡gv‡Z memgq gnvwek¦ AcwiewZ©Z \_v‡K| d‡j Gi ‡Kv‡bv ïi“ ev ‡kl ‡bB| c«mvi‡Yi mv‡\_ mv‡\_ Gi dvuKv ¯’v‡b bZyb bZyb c`v\_© ‰Zwi nq| memgq GKwU wbw`©ó NbZ¡ eRvq \_v‡K| Qvqvc\_‡`i wbqwZ Avwg Av‡Mi Aa¨vq¸‡jv‡Z ‡hgb e‡jwQ ‡ZgbB: Rb¥, weeZ©b I g…Z¨y| wKš‘ Acwimxg bZybm…ó c`v\_© ‡\_‡K c«wZwbqZ ‰Zwi n‡”Q bZyb bZyb Qvqvc\_| d‡j c«‡Z¨K hy‡MB gnvwe‡k¦i mvaviY ‡Pnviv mvwe©Kfv‡e GKB \_v‡K| GKwU wbw`©ó AvqZ‡bi ¯’v‡b Qvqvc‡\_i msL¨v memgq mgvb \_v‡K, hv‡`i G‡KKwUi eqm G‡KK iKg|

ïi“‡Z k~b¨ ‡\_‡K gnvwek¦ Kxfv‡e Gj GB c«‡kœi Reve w`‡Z bv ‡c‡i w¯’ive¯’v ZË¡ ‡kl n‡q hvq| GB Z‡Ë¡ weeZ©‡bi gva¨‡g gnvRvMwZK Awebk¦iZvi mv‡\_ gRvi ‰ewP‡Zª¨i mgš^q Kiv n‡q‡Q| Avm‡j GwU AviI GK avc mvg‡bI hvq| Kvi‡Y G‡KKwU Qvqvc\_ ax‡i ax‡i g‡i ‡M‡jI mvwe©Kfv‡e gnvwek¦ KLbI e…× nq bv| Avgv‡`i DËicyi“l‡`i‡K gvwU Lyu‡o µ‡gB dywi‡q Avmv R¡vjvwbi ‡LvuR Ki‡Z n‡e bv| GK Qvqvc\_ cyivZb n‡q ‡M‡j ïay Av‡iK Qvqvc‡\_ P‡j ‡h‡Z n‡e GB hv| GUv Pj‡Z cv‡i Abš—Kvj ch©š—| memgq \_vK‡e GKBiKg ‡ZR, ‰ewPZª¨ I mwµqZv|

Z‡e GUv‡K KvR Ki‡Z n‡j wKQy ‡fŠZ kZ© c~iY n‡Z nq| c«mvi‡Yi Kvi‡Y K‡qK k eQi cici gnvwe‡k¦i AvKvi wØ¸Y nq| NbZ¡‡K GKB \_vK‡Z n‡j GB mg‡qi g‡a¨ c«vq 1050 Ub bZyb c`v\_© c«‡qvRb| ‡`‡L G‡K A‡bK ‡ewk g‡b nq| wKš‘ Gi gv‡b n‡jv c«wZ kZ‡K wegv‡bi M¨v‡i‡Ri AvKv‡ii ¯’v‡b M‡o GKwU cigvYy m…wó| Ggb NUbv Avgv‡`i ‡Pv‡L covi m¤¢vebv Lye Kg| Gfv‡e c`v\_© ‰Zwi nIqvi ‡fŠZ c«wµqvi AviI eo GKwU mgm¨v Av‡Q| G‡Kev‡i Kg K‡i n‡jI Avgv‡`i‡K ‡Zv Rvb‡Z n‡e evowZ f‡ii ‡hvMvb ‡`Iqv ‡mB kw³ ‡Kv‡Ì‡K Avm‡e| Avi ‡KbBev GB kw³ KLbI dywi‡q hv‡e bv| ‡d«W n‡qj I Zvui mnKg©x Rqš— bviwjKvi GB mgm¨v wb‡q KvR Ki‡b| Zvuiv `yRbB w¯’ive¯’v ZË¡‡K we¯—vwiZ iƒc `vb K‡ib| kw³i mieiv‡ni R‡b¨ Zvuiv m…wó ‡¶Î bv‡g bZyb ai‡bi GKwU ‡¶Î c«¯—ve K‡ib| a‡i ‡bIqv n‡qwQj, kw³ ‡¶‡Îi wb‡Ri \_vK‡e FYvZ¥K kw³| m f‡ii c`v‡\_i« c«wZwU bZyb KYvi Avwef©v‡ei mv‡\_ mv‡\_ kw³ ‡¶‡Î -mc2 cwigvY kw³ Rgv n‡e|

kw³ ‡¶‡Îi aviYvi mvnv‡h¨ kw³i ‡hvMvb mgm¨vi c×wZMZ mgvavb n‡jv| wKš‘ A‡bK c«kœ ‡\_‡K ‡Mj AgxgvswmZ| GQvovI mgvavbwU wbQK c«‡qvR‡bi LvwZ‡iB ‰Zwi e‡j g‡b nw”Qj| GB inm¨gq ‡¶‡Îi Ab¨ ‡Kv‡bv ewntc«Kvk wQj bv| Gi ‡P‡q eo K\_v n‡jv, 1960 Gi `k‡K ch©‡e¶Y P‡j hvw”Qj ZË¡wUi wec‡¶| wec‡¶ me‡P‡q ¸i“Z¡c~Y© c«gvY wQj gnvRvMwZK cUf~wg Zvcxq wewKi‡Yi Avwe®‹vi| mylg GB cUf~wg‡K mn‡RB weM e¨vs‡qi aŸsmve‡kl wn‡m‡e e¨vL¨v Kiv hvq| wKš‘ w¯’ive¯’v Z‡Ë¡ Gi e¨vL¨v cvIqv gykwKj| GQvovI `~i AvKv‡ki Qvqvc\_ I ‡eZvi Qvqvc‡\_i2 Rwic ‡\_‡K eo KvVv‡gv‡Z gnvwe‡k¦i cwieZ©‡bi c‡¶ AKvU¨ c«gvY cvIqv hvq| GUv cwi®‹vi n‡q ‡M‡j ‡d«W I Zvui mnKg©xiv w¯’ive¯’v Z‡Ë¡i mij iƒc cwinvi K‡ib| Aek¨ gv‡Sg‡a¨ ZË¡wUi AviI RwUj iƒ‡ci mvgwqK D`q N‡U|

‡fŠZ I ch©‡e¶Yg~jK mgm¨v ev` w`‡jI w¯’ive¯’v ZË¡ wKQy AvM«‡nvÏxcK `vk©wbK mgm¨vi Rb¥ ‡`q| ‡hgb ai“b, Avgv‡`i eskaiiv nv‡Z Amxg mgq I m¤ú` ‡c‡j Zv‡`i c«hyw³MZ DbœwZi ‡Kv‡bv my¯úó mxgv \_vK‡e bv| cy‡iv gnvwe‡k¦ Qwo‡q co‡Z Zv‡`i mvg‡b ‡Kv‡bv evav \_vKvi K\_v bq| µ‡gB AviI eo AvqZ‡bi ¯’vb n‡e Zv‡`i KivqZ¡| d‡j Lye `~‡ii fwel¨‡Z gnvwe‡k¦i eo GKwU Ask c«hyw³i `L‡j Avm‡e| wKš‘ c«¯—vebv ej‡Q, gnvwe‡k¦i eo KvVv‡gvi ‰ewkó¨ mg‡qi mv‡\_ mv‡\_ AcwiewZ©Z \_vK‡e| d‡j w¯’ive¯’v ZË¡ ej‡Q, Avgv‡`i eZ©gvb gnvwek¦ B‡Zvg‡a¨ c«hyw³i Kivq‡Z¡ P‡j G‡m‡Q| w¯’ive¯’vi gnvwe‡k¦ ‡fŠZ Ae¯’v¸‡jv me hy‡MB mvwe©Kfv‡e GKB iKg hy‡MB eyw×gvb c«vYx‡`i Avwef©ve me hy‡MB nIqvi K\_v| Avi ‡h‡nZy GB c«wµqv Abš—Kvj a‡i Pj‡Q, ‡m Kvi‡Y Ggb wKQy m¤cÖ`vq \_vKv DwPZ hviv A‡bK `xN© mgq a‡i wU‡K Av‡Q| d‡j Zviv c«hyw³ LvwU‡q A‡bK wecyj cwigvY AvqZ‡bi ¯’vb KivqZ¡ Kivi K\_v| hvi g‡a¨ \_vK‡e gnvwe‡k¦i Avgv‡`i AÂjUvI| eyw×gvb c«vYxiv gnvwek¦ `Lj Ki‡Z Pvq bv e‡j GB djvdj Gov‡bvi ‡Kv‡bv my‡hvM ‡bB| Acwimxg mgq Av‡M ‡h‡Kv‡bv GKwU m¤cÖ`v‡qi Avwef©veB Ggb djvd‡ji R‡b¨ h‡\_ó| Gi mv‡\_ c«vPxb GKwU avuavui wgj Av‡Q: Amxg gnvwe‡k¦ ‡h NUbv NUvi m¤¢vebv Lye Kg ‡mwUI GK w`b bv GK w`b NU‡e| ZvI GKevi `yevi bq| AmxgmsL¨K evi| hyw³i aviv ‡e‡q Pj‡Z Pj‡Z Avgiv ‡cŠu‡Q hvB ‡mB wZ³ Dcmsnv‡i: w¯’ive¯’v ZË¡ Abymv‡i gnvwe‡k¦ msNwUZ c«wµqv¸‡jv AweKj Gi Awaevmx‡`i c«hyw³MZ Kvh©µ‡gi g‡Zv| Avgiv hv‡K c«K…wZ ewj ‡mUv Avm‡j GKwU ev GK`j gnvc«vYxi KK©KvÊ Qvov Avi wKQyB bq| G‡K ‡`‡L g‡b n‡”Q ‡c­‡Uvi ‡Wwgqv‡Ri« GKwU iƒc| ‡WwgqvR© n‡jv GKwU ‡`eZv ‡h ‡eu‡a ‡`Iqv ‡fŠZ m~‡Îi mxgvi g‡a¨ ‡\_‡K KvR K‡i| gRvi e¨vcvi n‡jv, n‡qj Zvui ‡k‡li w`‡Ki gnvRvMwZK ZË¡¸‡jv‡Z Ggb gnvc«vYx‡`i K\_v mg\_©b K‡i ‡M‡Qb|

gnvwe‡k¦i mgvwß wb‡q K\_v DV‡jB Zvi D‡Ïk¨ m¤ú‡K© c«kœ Av‡m| Avwg Av‡MB e‡jwQ, gnvwe‡k¦i g…Z¨yi m¤¢vebv ‡`‡L evU«©vÛ iv‡mj g‡b K‡iwQ‡jb, gvby‡li Aw¯—Z¡ ‡kl ch©š— e¨\_©| w÷‡fb DBbevM©I m¤cÖwZ G gZ ‡cvlY K‡i‡Qb| Zvi `¨ dv÷© w\_« wgwbUm eB‡qi ‡k‡li Dcmsnvi n‡jv, Ògnvwek¦‡K hZUv ‡ewk ‡evSv hv‡”Q, ZZB A\_©nxb g‡b n‡”Q|" Avwg e‡jwQ, ax‡i ax‡i gnvRvMwZK Zvcxq g…Z¨yi fq‡K eo K‡i ‡`Lv‡bv n‡q‡Q| nqZ fyjI Kiv n‡q‡Q| Aek¨I gnvm‡¼vP‡bi gva¨‡g g…Z¨y n‡jI n‡Z cv‡i| Avwg gnvc«vYx‡`i Kg©KvÊ wb‡q wKQy Abygvb K‡iwQ| hviv we¯§qKi ‡fŠZ I eyw×MZ AR©b w`‡q c«wZK~jZv‡K Rq Ki‡Z cv‡i| GQvovI Avwg ms‡¶‡c wPš—vi mxgvnxbZv wb‡q Av‡jvPbv K‡iwQ| hw`I gnvwe‡k¦i mxgv \_vK‡jI \_vK‡Z cv‡i|

wKš‘ weKí GB wPÎ¸‡jv Avgv‡`i nZvk `~i Ki‡Z m¶g wK? GKevi Avgvi GK eÜy ejj, ¯^M© m¤ú‡K© ‡m hv ï‡b‡Q Zv‡Z Zvi AvM«n‡eva Av‡mwb| Zvi g‡Z, Abš—Kvj a‡i gwngvwš^Z fvimvg¨c~Y© Rxeb n‡e AvKl©Ynxb| Gi ‡P‡q `ª“Z g‡i wM‡q Abš— Rxe‡bi GK‡N‡qwg ‡\_‡K gyw³ cvIqvB fvj| Agi‡Z¡i Rxe‡b hw` GKB wPš—v I AwfÁZvB wd‡i wd‡i ‡fvM Ki‡Z nq Zvn‡j Zv mwZ¨B A\_©nxb| wKš‘ Agi‡Z¡i mv‡\_ hw` DbœwZ hy³ nq, Zvn‡j Avgiv wPiš—b bZyb‡Z¡ emev‡mi K\_v Kíbv Ki‡Z cvwi| memgq bZyb I ‡ivgvÂKi wKQy Kiv I ‡kLv hv‡e| mgm¨v n‡jv, Zvi D‡Ïk¨ Kx n‡e? gvbyl GKwU c«Kí nv‡Z wb‡j Zvi ‡cQ‡b \_v‡K D‡Ïk¨| D‡Ïk¨ AwR©Z bv n‡j c«Kí nq e¨\_© (hw`I jä AwfÁZvi g~j¨ Av‡Q) Ab¨ w`‡K j¶¨ AwR©Z n‡j c«Kí mdj| Avi Kvh©µg n‡e mgvß| ‡h c«Kí KLbI ‡kl n‡e bv Zvi wK ‡Kv‡bv mwZ¨Kvi j¶¨ ev D‡Ïk¨ \_vK‡Z cv‡i? Aw¯—‡Z¡i ¯^iƒc hw` nq KLbI ‡cŠuQ‡Z bv cviv GK Mš—e¨, Z‡e wK Zv‡K A\_©en ejv hv‡e?

gnvwe‡k¦i ‡Kv‡bv D‡Ïk¨ \_vK‡j Avi ‡mB D‡Ïk¨ AwR©Z n‡j gnvwe‡k¦i mgvwß NU‡ZB n‡e| KviY, ZLbI Gi Aw¯—Z¡ Aweivg \_vKv n‡e wfwËnxb I wbi\_©K| Ab¨ w`‡K gnvwek¦ wPiKvj wU‡K \_vK‡j Gi ‡Kv‡bv P~ovš— D‡Ïk¨ Av‡Q Kíbv Kiv KwVb| d‡j gvnvRvMwZK mdjZvi wewbgq nqZ gnvRvMwZK g~j¨ w`‡q w`‡Z n‡e| Avgiv m‡e©v”P c«Z¨vkv n‡jv, Avgv‡`i eskaiiv nqZ ‡kl wZb wgwb‡Ui Av‡MB gnvwe‡k¦i D‡Ïk¨ Rvb‡Z cvi‡e|

Abyev`‡Ki ‡bvU

1| wdwb· g~jZ wM«K iƒcK\_vi GKwU cvwL, hv PµvKv‡i G‡Ki ci GK Gi c~e©cyi“‡li QvB ‡\_‡K cybR©b¥ jvf K‡i|

2| eY©vjxi ‡eZvi Zi½‰`‡N¨i« As‡k ‡h M¨vjvw·¸‡jv Lye D¾¡j Zv‡`i bvg ‡eZvi Qvqvc\_| 10 ‡gMvnvU©R ‡\_‡K 100 wMMvnvU©R K¤úv‡¼ G‡`i `xwß 1039 IqvU ch©š— nq|

M«š’cÄx

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cwifvlv

A‡bK mgq wbQK `y‡qKwU kã eyS‡Z bv cvivi Kvi‡Y ‡Kv‡bv eB‡qi g~j AskB ‡evSv KwVb n‡q `vuovq| G mgm¨v `~i Ki‡ZB eBwU‡Z e¨eüZ c«‡qvRbxq wKQy cwifvlv ‡hvM Kiv n‡q‡Q| cwifvlv¸‡jv‡K evsjv GKv‡Wwgi wbqg ‡g‡b eY©vbyµg Abymv‡i mvRv‡bvi ‡Póv Kiv n‡q‡Q|

– Abyev`K

AwbðqZv bxwZ (Uncertainty principle): ‡Kv‡bv KwYKvi Ae¯’vb I ‡eM GKBmv‡\_ wbwðZ K‡i Rvbv m¤¢e bq| Gi GKwU hZ ‡ewk wbf©yjfv‡e cwigvc Kiv n‡e, AciwU m¤ú‡K© cvIqv Z\_¨ ZZB AwbwðZ n‡q co‡e| GB bxwZwU nvB‡Rbev‡Mi« Ae`vb|

AvKvkM½v (Milky Way): Avgv‡`i m~h© ‡h Qvqvc‡\_i Ask| c…w\_ex ‡\_‡K mwc©j evûi GB Qvqvc‡\_i Aivqb evûwU M«x‡®§i iv‡Zi AvKv‡k DËi-`w¶‡Y we¯—…Z e…ËPv‡ci g‡Zv ‡`Lv hvq|

Ac«Z¨vMvgx c«wµqv (Irreversible process): ‡h c«wµqv ïay GKw`‡KB P‡j, ‡cQb w`‡K wd‡i Av‡m bv| Gi c«‡qvM ‡`Lyb wØZxq Aa¨v‡q|

AvBÝUvBb- ‡iv‡Rb ‡mZy (Einstein-Rosen bridge): ¯’vb- Kv‡ji GKwU mi“ wUDe, hv `ywU e­¨vK ‡nvj‡K hy³ K‡i| Av‡iv ‡`Lyb, Iqvg©‡nvj|

Av‡jvKel© (light-year): Av‡jv GK eQ‡i ‡h `~iZ¡ AwZµg K‡i| (\* g‡b ivL‡Z GwU, Av‡jvK-‡m‡KÛ Ges GB RvZxq GKK¸‡jv mg‡qi bq, `~i‡Z¡i GKK)

Av‡jvK-‡m‡KÛ (Light-second): Av‡jv GK ‡m‡K‡Û ‡h `~iZ¡ AwZµg K‡i|

B‡jKU«b (Electron): wbDwK¬qv‡mi Pviw`‡K NyY©biZ ‡b‡MwUf ev FYvZ¥K PvR©avix KwYKv|

B‡jKwU«K PvR© ev Zwor Avavb (Electric charge): KwYKvi ag© hvi gva¨‡g GwU wecixZ PvR©avix Ab¨ KwYKv‡K AvKl©Y K‡i Ges GKB iKg PvR©avix KwYKv‡K weKl©Y K‡i|

I‡Rvb (Weight): gnvKl©xq (ev AwfKl©xq) ‡¶Î Øviv ‡Kv‡bv e¯—yi Dci c«hy³ ej| GwU f‡ii mgvbycvwZK wKš‘ mgvb bq| Avgiv mvaviYZ hv‡K I‡Rvb ewj, ‡mwU Avm‡j fi| f‡ii mv‡\_ AwfKl©xq Z¡iY ¸Y Ki‡j I‡Rvb cvIqv hvq|

Iqvg©‡nvj (Wormhole): gnvwe‡k¦i `~ieZ©x `ywU AÂ‡ji ms‡hvM c«`vbKvix GKwU cvZjv wUDe ev myo½| Iqvg©‡nv‡ji Aci c«v‡š— mgvš—ivj ev wkï gnvwek¦ \_vK‡Z cv‡i, hvi gva¨‡g mgq ågY m¤¢e n‡Z cv‡i|

KYv Z¡iKhš¿ (Particle accelerator): ‡h ‡gwk‡bi mvnv‡h¨ B‡jK‡U«vg¨vM‡bU ev Zwo”Py¤^K e¨envi K‡i ‡ewk kw³ w`‡q w`‡q MwZkxj PvR©avix KwYKv‡`i ‡eM e…w× Kiv hvq|

KYv- Zi½ ‰ØZZv (Wave-particle duality): ‡Kvqv›Uvg ‡gKvwb‡·i GB bxwZ ‡h, KwYKv I Zi‡½i g‡a¨ ‡Kv‡bv cv\_©K¨ ‡bB| ‡Kv‡bv mgq KwYKv AvPiY K‡i Zi‡½i g‡Zv, Avevi KL‡bv Zi½ KwYKvi g‡Zv AvPiY K‡i|

Km‡gvjwR ev gnvwek¦ZË¡ (Cosmology): mvgwM«Kfv‡e gnvwek¦ wb‡q Av‡jvPbv Kiv n‡q ‡h kv‡m«|

‡Kvqv›Uvg (Quantum): ‡Kv‡bv cvigvYweK c«wZwµqvq Ask ‡bIqv e¯—yi me©wbgœ cwigvY|

‡Kvqv›Uvg ‡gKvwb· (Quantum mechanics): c­¨v‡¼i ‡Kvqv›Uvg bxwZ I nvB‡Rbev‡Mi« AwbðqZv bxwZ ‡\_‡K c«¯—yZ Kiv w\_Iwi|

‡KvqvK© (Quark): GKwU PvR©avix ‡gŠwjK KwYKv, hv mej wbDwK¬qvi ej Abyfe K‡i| ‡c«vUb I wbDU«b `ywU KwYKvB wZbwU K‡i ‡KvqvK© Øviv MwVZ|

K¤úv¼ ev wd«Ky‡qwÝ (Frequency): ‡Kv‡bv Zi½ c«wZ ‡m‡K‡Û hZ¸‡jv Pµ ev K¤úb m¤úbœ K‡i|

K…lMnŸi (Blackhole): ¯’vb-Kv‡ji Ggb AÂj ‡hLvb ‡\_‡K ‡Kv‡bvwKQyB ‡ewi‡q Avm‡Z cv‡i bv| GgbwK Av‡jvI bv|

‡¶Î (Field): Ggb wKQy hv ¯’vb- Kv‡ji D‡j­L‡hvM¨ As‡k we¯—…Z | GwU KwYKvi wecixZ, hv wbw`©ó ‡Kv‡bv mg‡q ïay GKwU we›`y‡ZB Ae¯’vb K‡i|

Mvgv iwk¥ (Gamma rays): Lye ¶y`« Zi½‰`‡N¨i« Zwo”Py¤^Kxq iwk¥| ‡ZRw¯Œq wewKiY ev ‡gŠwjK KwYKv‡`i msN‡li« d‡j GwU Drcbœ nq| Av‡iv ‡`Lyb, ‡ZRw¯ŒqZv|

M¨vjvw·: ‡`Lyb Qvqvc\_

NUbv (Event): wbw`©ó ¯’vb I mgqwewkó ¯’vb- Kv‡ji Dci¯’ ‡Kv‡bv we›`y|

NUbv w`Mš— (Event horizon): e­¨vK ‡nv‡ji mxgvbv| e­¨vK ‡nv‡ji Pvicv‡ki ‡h AÂ‡ji evB‡i Av‡jv Avm‡Z cv‡i bv|

‡PŠ¤^K ‡¶Î (Magnetic field): ‡PŠ¤^K e‡ji R‡b¨ `vqx ‡¶Î| Zwor ‡¶‡Îi (electric field) mv‡\_ mgwš^Z n‡q GwU GLb Zwo”Py¤^Kxq ‡¶‡Îi Ask|

Qvqvc\_ (Galaxy): gnvKl©xq eÜ‡b Ave× eû b¶Î, Avš—tbv¶wÎK M¨vm, a~wji I WvK© g¨vUv‡ii mgv‡ek|

WvK© g¨vUvi (Dark matter): M¨vjvw·, M¨vjvw·cyÄ I G‡`i gv‡S Aew¯’Z ‡mme e¯—y hv‡`i‡K GL‡bv mivmwi ‡`Lv m¤¢e nqwb| wKš‘ gnvKl©xq c«fv‡ei Kvi‡Y G‡`i Dcw¯’wZ ‡Ui cvIqv hvq| gnvwe‡k¦i Aš—Z 90 fvM fiB WvK© g¨vUvi|

Zwo”Py¤^Kxq ej (Electromagnetic force): B‡jKwU«K PvR©avix KwYKv‡`i g‡a¨ ‡h ej KvR K‡i| Pvi c«Kvi ‡gŠwjK e‡ji g‡a¨ kw³‡Z wØZxq|

ZË¡ (Theory): Zi½‰`N¨© ‡Kv‡bv NUbv‡K e¨vL¨v Ki‡Z cviv I fwel‡Z¨ Kx NU‡Z cv‡i ‡m m¤ú‡K© Abygvb Ki‡Z cviv ‡Kv‡bv GKwU g‡Wj|

Zi½‰`N¨© (Wavelength): ‡Kv‡bv Zi‡½i cvkvcvwk Aew¯’Z `ywU P~ov ev Lvu‡Ri g‡a¨ `~iZ¡| [wPÎ ‡`Lyb]

ZvcMwZwe`¨vi wØZxq m~Î (Second Law of Thermodynamics): GKwU Ave× wm‡÷‡gi GbU«wc KLbI K‡g bv| GbU«wc gv‡b kw³ iƒcvš—‡ii A¶gZv| ‡hgb, d¨vb Pvjv‡j we`¨yr kw³ N~Y©kw³‡Z cwiYZ nq| wKš‘ Zvc kw³ AvKv‡i wKQy kw³ AcPq nq, ‡hUv‡K Kv‡R jvMv‡bv hvq bv| Gfv‡e c«wZwbqZ wKQy kw³ Ae¨envi‡hvM¨ n‡q hvq| mvaviYZ GbU«wc memgq ev‡o| GbU«wc cwieZ©b n‡e bv hw` c«wµqv c«Z¨vMvgx nq| AviI ‡`Lyb, c«Z¨vMvgx|

ZvivgÊjx (Constellation): AvKv‡ki 88 wU AÂ‡ji Avjv`v Avjv`v bvg| gnvRvMwZK wewfbœ e¯—yi AvKv‡ki ‡Kvb w`‡K Aew¯’Z Zv mn‡R ‡Pbvi Rb¨ ZvivgÊjx Kv‡R Av‡m| Ggwb‡Z GKB ZvivgÊjx‡Z Aew¯’Z b¶Î ev Qvqvc\_iv ev¯—‡e mvaviYZ eû `~‡i `~‡i \_v‡K| ïay ‡`L‡ZB GKB w`‡K| ‡KD `~‡i, ‡KD Kv‡Q|

‡ZRw¯ŒqZv (Radioactivity): wKQy wKQy cigvYy wb‡RB wb‡RB Ab¨ cigvYy‡Z cwiYZ nevi ‡h c«wµqv|

`kv (Phase): wbw`©ó mg‡q ‡Kv‡bv Zi‡½i Ae¯’vb| Gi gva¨‡g ‡evSv hvq ‡h Zi‡½i Ae¯’vb wK Lvu‡R, P~ovq bvwK GB `yB‡qi gv‡S Ab¨ ‡Kv\_vI Av‡Q|

`ye©j wbDwK¬qvi ej (Weak force): Pvi c«Kvi ‡gŠwjK e‡ji g‡a¨ wØZxq `ye©j ej| GwU gnvK‡li« ‡P‡q kw³kvjx| GiI cvj­v Lye ‡QvU| GwU ‡h ‡Kv‡bv e¯—y KYv‡K AvKl©Y K‡i, Z‡e ejevnx KwYKv‡K AvKl©Y K‡i bv| (\*G‡K ms‡¶‡c ejv nq `ye©j ej|)

b¶Î (Star): gnvKl© eÜ‡b Ave× ‡MvjvK…wZi c­vRgv c`v\_©| M«n b¶‡Îi cv\_©K¨ n‡jv, ‡ewkifvM b¶Îi Rxe‡bi D‡j­L‡hvM¨ mgq Ry‡o wdDkb wewµqvi gva¨‡g Av‡jv I Zvc Drcbœ K‡i|

wbDwK¬qvi wdDkb (Nuclear fusion): ‡h c«wµqvi gva¨‡g `ywU cigvYyi wbDwK¬qvm msN‡li« gva¨‡g hy³ n‡q GKwUgvÎ fvix wbDwK¬qvm MVb K‡i|

wbDwK¬qvm (Nucleus): cigvYyi ‡K›`«xq Ask| G‡Z mej e‡ji gva¨‡g ‡c«vUb I wbDU«b hy³ \_v‡K|

wbDU«b (Neutron): A‡bKUv ‡c«vU‡bi g‡ZvB GKwU KwYKv, Z‡e G‡Z ‡Kv‡bv PvR© ‡bB| cigvYyi wbDwK¬qv‡mi A‡a©K KwYKv GB wbDU«b w`‡q c~iY nq|

wbDU«b b¶Î (Neutron star): mycvi‡bvfv we‡ùvi‡Yi c‡i A‡bK mgq ‡h kxZj Ask evwK ‡\_‡K hvq| GwU N‡U hLb ‡Kv‡bv b¶‡Îi ‡K›`«fv‡Mi e¯—y ¸wU‡q wbDU«‡bi Nb f‡ii e¯—y‡Z cwiYZ nq| (\*Gi gnvKl© GZUv kw³kvjx ‡h B‡jKU«b I ‡c«vUb GK n‡q wM‡q cy‡ivUv PvR©nxb wbDU«‡b cwiYZ nq|) Av‡iv ‡`Lyb, wbDU«b|

wbDwU«‡bv (Neutrino): GKwU Am¤¢e nvjKv KwYKv, hv ïay gnvKl© Ges `ye©j wbDwK¬qvi ej Øviv c«fvweZ nq|

wbðj fi (Rest Mass): wm‡÷‡gi mvwe©K MwZ ‡\_‡K ¯^vaxb ‡gvU fi‡K wbðj fi e‡j| Ab¨ bvg: c«K…Z (proper) fi, Af¨š—ixY (intrinsic) fi|

Z¡iY (Acceleration): ‡h nv‡i (mg‡qi cwieZ©‡bi mv‡\_) ‡Kv‡bv e¯—yi ‡eM cwieZ©b nq|

‰ØZZv (duality): AvcvZ `…wó‡Z Avjv`v n‡jI GKB djvdj c«`vb Kiv `y‡Uv w\_Iwii g‡a¨ m¤úK©| Av‡iv ‡`Lyb, KYv/ Zi½ ‰ØZZv|

cwRU«b (Positron): B‡jKU«‡bi abvZ¥K PvR©avix c«wZKwYKv| Av‡iv ‡`Lybt c«wZKwYKv|

cig k~b¨ ZvcgvÎv (Absolute zero temperature): me©wbgœ m¤¢ve¨ ‡mB ZvcgvÎv, hv‡Z e¯—yi ‡Kv‡bv Zvc kw³ \_v‡K bv| Gi gvb 0 ‡Kjwfb ev -273.16 wWwM« ‡mjwmqvm|

cigvYy (Atom): mvaviY e¯—yi ‡gŠwjK GKK| G‡Z GKwU ¶y`« wbDwK¬qv‡mi (‡c«vUb I wbDU«b w`‡q ‰Zwi) Pvicv‡k B‡jKU«biv K¶c‡\_ Nyi‡Z \_v‡K|

c­¨v‡¼i ‡Kvqv›Uvg bxwZ (PlanckÕs quantum principle): Av‡jv (ev Ab¨ ‡h ‡Kv‡bv c«PwjZ Zi½) ïay wew”Qbœ ‡Kvqv›Uv AvKv‡i wbM©Z nq, hvi kw³ Gi K¤úv‡¼i mgvbycvwZK Ges Zi½‰`‡N¨i« e¨¯—vbycvwZK| Av‡iv ‡`Lybt mgvbycvwZK I e¨¯—vbycvwZK|

c«wZKwYKv (Antiparticle): e¯—yi c«‡ZKwU KwYKvi wecix‡Z GKwU c«wZKwYKv Av‡Q (hvi PvR© Qvov Avi me ag© KwYKvi g‡ZvB| ‡hgb B‡jKU«‡bi c«wZKwYKv cwRU«b, hvi PvR© +1|)| KwYKv I c«wZKwYKvi g‡a¨ msNl© n‡j `ywUB wbwðý n‡q hvq, wewbg‡q cvIqv hvq kw³|

c«wZmvg¨ (Symmetry): GKwU we›`y ev Ae¯’v‡bi mv‡c‡¶ ‡Kv‡bv wRwbm‡K `yB wecixZ w`K ‡\_‡K ‡`L‡Z GKB iKg ‡`Lv ‡M‡j Zv‡K c«wZmg wRwbm ev NUbv e‡j| we¯—vwiZ Rvb‡Z ‡`Lyb, beg Aa¨v‡qi Abyev`‡Ki ‡bvU|

‡c«vUb (Proton): c«vq wbDU«‡bi g‡ZvB GKwU KwYKv| wKš‘ Gi i‡q‡Q abvZ¥K PvR©| cigvYyi wbDwK¬qv‡mi KwYKv‡`i c«vq A‡a©KmsL¨K Giv|

‡dvUb (Photon): Av‡jvi GKwU ‡Kvqv›Uvg| Av‡iv ‡`Lyb ‡Kvqv›Uvg|

wdDkb: ‡`Lyb wbDwK¬qvi wdDkb

eY©vjx (Spectrum): GKwU Zi‡½i Dcv`vb K¤úv¼¸‡jv| ‡mŠieY©vjxi `…k¨gvb Ask isaby‡Z ‡`Lv hvq| Avgiv Lvwj ‡Pv‡L ‡h Av‡jv ‡`wL Gi evB‡iI bvbvb Av‡jv Av‡Q RM‡Z| me¸‡jv Av‡jv‡K GKmv‡\_ ejv nq eY©vjx|

weM e¨vs (Big bang): gnvwe‡k¦i ïi“‡Z ‡h wmO&¸jvwiwU wQj| Av‡iv ‡`Lyb, wmO&¸jvwiwU|

we‡kl Av‡cw¶K ZË¡ (Special relativity): gnvK‡li« Abycw¯’wZ‡Z ‡h ‡Kv‡bv ‡e‡M MwZkxj mKj c‡h©‡e¶‡Ki Kv‡Q weÁv‡bi m~Î¸‡jv GKB \_vK‡e- GB bxwZi wfwË‡Z ‰Zwi AvBb÷vB‡bi w\_Iwi| Kvj `xN©vqb, ‰`N© m‡¼vPb, fi-kw³ mgZyj¨Zv BZ¨vw` GB w\_Iwii dmj| Av‡iv ‡`Lyb, mvwe©K Av‡cw¶K ZË¡|

e¨¯—vbycvwZK (inversely proportional): X, Y Gi e¨¯—vbycvwZK n‡j Gi A\_© n‡”Q Y ‡K ‡Kv‡bv msL¨v Øviv ¸Y Ki‡j X ‡K ‡mB msL¨v Øviv fvM ‡`Iqv n‡”Q| A\_¨©vr, Y hZ ¸Y evo‡e, X ZZ ¸Y K‡g hv‡e| ‡hgb Y wØ¸Y n‡j X n‡q hv‡e A‡a©K| Y wZb ¸Y n‡j X n‡e wZb fv‡Mi GK fvM| Z‡e hw` ejv nq X, Y Gi e‡Mi« e¨¯—vbycvwZK, Zvn‡j Y wØ¸Y n‡j X n‡e Pvi fv‡Mi GK fvM| Av‡iv ‡`Lyb, mgvbycvwZK|

e­¨vK ‡nvj (Black hole): ‡`Lyb K…òMnŸi|

fi (Mass): ‡Kv‡bv e¯—y‡Z Dcw¯’Z c`v‡\_i« cwigvY; e¯—yi RoZv ev Z¡i‡Yi c«wZ evav|

fvP©yqvj KwYKv (Virtual particle): ‡h KYweKv‡`i‡K mivmwi ‡`Lv hvq bv, wKš‘ cwigvc‡hvM¨ c«wZwµqv \_v‡K| Giv Lye ¶Y¯’vqx| AwbðqZv bxwZi gva¨‡g ‰Zwi nq I Avevi `ª“Z aŸsm n‡q hvq|

gnvRvMwZK a«yeK (Cosmological constant): ¯’vb- Kv‡ji mnRvZ ag©B n‡”Q c«mvwiZ nIqv- Ggb e¨vL¨v ‡`evi R‡b¨ AvBb÷vB‡bi D™¢vweZ MvwYwZK a«yeK| c‡i ‡`Lv wM‡qwQj GB a«yeK Avbv wQj fyj wm×vš—| wKš‘ GLb Avevi Gi c«‡qvRb Av‡Q e‡j g‡b n‡”Q|

gvB‡µvI‡qf cUf~wg wewKiY (Microwave background radiation): Avw` DËß gnvwek¦ ‡\_‡K wbM©Z wewKiY| eZ©gv‡b Gi GZ ‡ewk jvj miY n‡q‡Q ‡h G‡K Avi Av‡jv wn‡m‡e ‡`Lv hvq bv, cvIqv hvq gvB‡µvI‡qf wn‡m‡e| gvB‡µvI‡qf nj K‡qK ‡mw›UwgUvi Zi½‰`‡N¨i« ‡eZvi Zi½| Av‡iv ‡`Lyb, jvj miY|

wgwéI‡q: ‡`Lyb AvKvkM½v |

‡gŠwjK KwYKv (Elementary particle): Ggb KwYKv hv‡K Avi fvOv hvq bv e‡j wek¦vm Kiv nq|

‡iWvi (Radar): ‡eZvi Zi‡½i gva¨‡g e¯—yi Ae¯’vb wbY©‡qi hš¿| hš¿ ‡\_‡K ‡c«wiZ m‡¼Z e¯—y‡Z ‡cŠu‡Q c«wZdwjZ n‡q wd‡i Avm‡Z ‡h mgq jv‡M Zv Kv‡R jvwM‡q `~iZ¡ ‡ei Kiv nq|

jvj ev ‡jvwnZ miY (Red shift): Wcjvi wµqvi Kvi‡Y Avgv‡`i KvQ ‡\_‡K `~‡i m‡i hvIqv b¶‡Îi Av‡jv‡K jvj ‡`Lv|

mej wbDwK¬qvi ej (Strong force): Pvi c«Kv‡ii ‡gŠwjK e‡ji g‡a¨ me‡P‡q kw³kvjx ej| Z‡e Gi cvj­v me‡P‡q ‡QvU| gv‡b Gi c«fve ‡ewk `~i ch©š— KvR K‡i bv| GwU ‡KvqvK©‡`i‡K hy³ K‡i ‡c«vUb I wbDU«b Ges ‡c«vUb I wbDU«b‡K hy³ K‡i cigvYy MVb K‡i| ms‡¶‡c mej ejI ejv nq|

mgvbycvwZK (Proportional): X, Y Gi mgvbycvwZK n‡j Gi A\_© n‡”Q Y ‡K ‡Kv‡bv msL¨v Øviv ¸Y Kiv n‡j X ‡KI ‡mB msL¨v Øviv ¸Y Kiv n‡e| Gi A\_© n‡e Y ‡h nv‡i evo‡e XI ‡mB nv‡i evo‡e| Z‡e hw` ejv nq X, Y Gi e‡Mi« mgvbycvwZK, Z‡e Y wØ¸Y n‡j X Pvi ¸Y n‡e; Y wZb ¸Y n‡j X bq ¸Y n‡e BZ¨vw`|) Av‡iv ‡`Lyb, e¨¯—vbycvwZK|

mvaviY ev mvwe©K Av‡cw¶K ZË¡ (General relativity): ‡h ‡Kv‡bv MwZ‡Z Pjv ch©‡e¶‡Ki Kv‡Q weÁv‡bi m~Î¸‡jv GKB n‡e- GB aviYvi wfwË‡Z ‰Zwi AvBb÷vB‡bi w\_Iwi| GB w\_Iwi gnvKl©‡K PZyg©vwÎK ¯’vb- Kv‡ji mvnv‡h¨ c«Kvk K‡i| eo gvcKvwV‡Z gnvwek¦‡K GB ZË¡ w`‡qB e¨vL¨v Kiv nq|

¯’vb- Kvj (Space-time): PZyg©vwÎK ¯’vb, hvi we›`y¸‡jv‡K NUbv ejv nq|

wmO&¸jvwiwU (Singularity): ¯’vb- Kv‡ji Ggb we›`y ‡hLv‡b ¯’vb- Kv‡ji eµZv (A\_ev Ab¨ ‡Kv‡bv e¯—yMZ ivwk) Amxg nq|

w÷«s w\_Iwi (String theory): c`v\_©we`¨vi ‡mB w\_Iwi hv‡Z wewfbœ KwYKv‡K w÷«s (myZv, `wo BZ¨vw`) Gi K¤úb g‡b Kiv nq| w÷«s Gi ïay ‰`N¨© Av‡Q, Ab¨ ‡Kv‡bv gvÎv (D”PZv ev c«¯’) ‡bB|

wmgy‡jkb (simulation): ev¯—‡e Kiv Am¤¢e ev KwVb Ggb ‡¶‡Î we‡klZ Kw¤úDUv‡i mvnv‡h¨ welqwU wb‡q KvR Kivi bvg wmgy‡jkb| we¯—vwiZ ‡`Lyb cÂg Aav‡q¨i ‡bv‡U|

cwiwkó-K (Abyev`K)

gnvwe‡k¦i m¤¢ve¨ cwiYwZ

MZ kZ‡K Avgiv Rvb‡Z cvwi, gnvwe‡k¦i GKwU wbw`©ó AZxZ Av‡Q| Zvi Av‡M w¯’i Ae¯’v ZË¡ Rbwc«q wQj| aviYv Kiv nZ, gnvwek¦ Abš—Kvj a‡i Dcw¯’Z Av‡Q| eqm Abš— n‡j fwel¨r cwiYwZ wb‡q c«kœ Av‡m bv| wKš‘ Kwei K\_v, ÒRwb¥‡j gwi‡Z n‡e|Ò ZvB fwel¨‡Z Kx n‡e ‡mUv eo GK c«kœ|

1920 mvj ‡\_‡K 1950| GB wek eQi a‡i weÁvbx GWDBb nve‡ji ch©‡e¶‡Yi gva¨‡g cwi®‹vi ‡evSv ‡Mj, Qvqvc\_iv G‡K Aci ‡\_‡K `~‡i mi‡Q| G ‡\_‡KB ‰Zwi nq weM e¨vs ZË¡| 1927 mv‡j RR© ‡j‡gBÎ e‡jb, c«mviYkxj gnvwek¦ ‡\_‡K ejv hvq, AZx‡Z gnvwek¦ wQj wbweo GK we›`yi g‡Zv| Gi Av‡M AvBb÷vB‡bi mvwe©K Av‡cw¶K Z‡Ë¡i mgvavb K‡i Av‡jKRvÛvi wd«Wg¨vbI GKB K\_v e‡jwQ‡jb| AvBb÷vB‡bi mgxKi‡Yi GKwU mgvavb Abymv‡i ‡`Lv hvq, GKwU c«v\_wgK wms¸jvwiwU ‡\_‡K Rb¥ gnvwe‡k¦i| 1964 mv‡j Avwe®‹…Z nq gnvRvMwZK cUf~wg wewKiY| weM e¨vs Gi c‡¶ GKwU eo c«gvY GKwU|

1998 mvj ‡\_‡K ïi“ K‡i wewfbœ ch©‡e¶Y ‡\_‡K ‡`Lv hvq, gnvwe‡k¦i c«mvi‡Yi MwZ µ‡gB evo‡Q| Gi Rb¨ `vqx kw³‡K bvg ‡`Iqv nq WvK© GbvwR©| AvBb÷vB‡bi mgxKiY ejwQj, gnvwek¦ c«mvwiZ n‡”Q| wKš‘ AvBb÷vBb wb‡RB ‡mUv wek¦vm Ki‡Zb bv| mgxKiY Am¤ú~Y© g‡b K‡i wZwb ZvB evowZ GKwU a«yeK ‡hvM K‡iwQ‡jb| c‡i ¯^xKvi K‡ib, GUv Zvi Rxe‡bi me‡P‡q eo fyj| wKš‘ GLb Avevi g‡b n‡”Q GB a«yeK `iKvi Av‡Q| GB a«yeK Avm‡j WvK© GbvwRi« wecix‡Z KvR K‡i|

fwel¨‡Z gnvwe‡k¦i fv‡M¨ ‡gvUv `v‡M ej‡j wZbwU NUbv NU‡Z cv‡i| nq GwU wPiKvj c«mvwiZ n‡Z \_vK‡e| gnvKl© c«mvi‡Yi MwZ Kgv‡bvi ‡Póv Ki‡e| Z‡e WvK© GbvwRi« Kvi‡Y c«mvi‡Yi MwZ µ‡gB evo‡e| Av‡iKwU n‡Z cv‡i, gnvwe‡k¦i c«mviY GK mgq ‡\_‡g hv‡e| ïi“ n‡e m‡¼vPb| Av‡iKwU m¤¢vebv n‡jv, c«mviY Pj‡Z \_vK‡e| Z‡e c«mvi‡Yi MwZ µgk Kg‡Z \_vK‡e| wKš‘ G‡Kev‡i eÜ n‡q hv‡e bv|

fwel¨‡Z gnvwe‡k¦i fv‡M¨ Kx NU‡e Zvi eo GKwU c«fveK n‡jv gnvwe‡k¦i NbZ¡ civwgwZ (density parameter)| G‡K wM«K eY© I‡gMv (Ω) w`‡q c«Kvk Kiv nq| Gi gvb ‡c‡Z gnvwe‡k¦i e¯—yi Mo NbZ¡‡K Nb‡Z¡i GKwU µvwš— gvb Øviv fvM Kiv nq| Nb‡Z¡i ‡h gvb Lye A‡íi Rb¨ gnvwe‡k¦i c«mviY‡K \_vgv‡Z eÜ n‡e Zvi bvg µvwš— (critical) NbZ¡|

gnvwe‡k¦i fwel¨‡Zi mv‡\_ Gi AvK…wZiI m¤úK© Av‡Q| I‡gMvi gvb 1-Gi ‡ewk n‡j gnvwe‡k¦i AvK…wZ n‡e Ave× ‡Mvj‡Ki c…‡ôi g‡Zv| KviY G‡¶‡Î gnvwe‡k¦i NbZ¡ µvwš— Nb‡Z¡i ‡P‡q ‡ewk| c…w\_exi c…‡ôi g‡Zv Ggb gnvwe‡k¦i wÎfy‡Ri wZb ‡Kv‡Yi ‡hvMdj 180 wWwM«i ‡ewk n‡e| Z‡e eo gvcKvwV‡Z gnvwe‡k¦i AvK…wZ n‡e Dce…‡Ëi g‡Zv| gnvK‡li« c«fv‡e GK mgq c«mviY ‡\_‡g hv‡e| ‡kl ch©š— NU‡e weM µvÂ (Big Crunch) ev gnvm‡¼vPb| we›`y ‡\_‡K Avmv gnvwek¦ we›`y‡Z wM‡qB Avevi wg‡k hv‡e|

Z‡e wKQy wKQy AvaywbK ZË¡ ej‡Q, I‡gMvi gvb 1-Gi ‡ewk n‡jI WvK© GbvwRi« c«fv‡e gnvwek¦ c«mvwiZ n‡ZB \_vK‡e| G Kvi‡Y gnvm‡¼vPb NUvi m¤¢vebv GLb ch©š— AwR©Z Ávb Abymv‡i Kg| Z‡e NU‡eB bv ‡mUv ejvi ‡Rv ‡bB|

I‡gMvi gvb 1-Gi Kg n‡j gnvwek¦ n‡e Db¥y³| wÎfy‡Ri wZb ‡Kv‡Yi ‡hvMdj 180 wWwM«i Kg n‡e| gnvKl© c«mviY‡K wKQyUv Kgv‡e| wKš‘ WvK© GbvwRi« c«fv‡e ‡m evav D‡c¶v K‡i c«mvi‡Yi MwZ eis AviI ‡e‡o ‡h‡Z \_vK‡e| Gfv‡e Pj‡Z \_vK‡j GKmgq gnvKl©, Zwo”PygKZ¡ I mej wbDK¬xq e‡ji evuab wQu‡o hv‡e| G Ae¯’v‡K ejv nq weM wic (Big Rip) ev gnvfvOb|

GKB iKg cwiw¯’wZ‡Z Av‡iKwU m¤¢ve¨ cwiYwZi bvg weM wd«R (Big Freeze) ev gnvwngvqb| G Ae¯’vq me©Î weivR Ki‡e wngkxZj Ae¯’v| n‡e bv ‡Kv‡bviKg Zvc wewbgq| ‡\_‡g hve e¯—yKYvi PjvPj| G Kvi‡Y Gi Aci bvg Zvcxi g…Z¨y| GUv N‡U ‡M‡j e¯—yi g‡a¨ Avi ‡Kv‡bv c«Kvi Zvc wewbgq m¤¢e n‡e bv| me hš¿ APj n‡q hv‡e| GbU«wc (kw³ iƒcvš—‡ii A¶gZv) n‡e m‡e©v”P|

Z‡e gnvwe‡k¦i NbZ¡ µvwš— Nb‡Z¡i mgvbI n‡q ‡h‡Z cv‡i| mwZ¨ ej‡Z, eZ©gvb ch©‡e¶Y Gi c‡¶B K\_v ej‡Q| Ggb gnvwe‡k¦B wÎfy‡Ri wZb ‡Kv‡Yi ‡hvMdj 180 wWwM« nq| G‡¶‡Î gnvwek¦ n‡e mgZj| ch©‡e¶Y ej‡Q, gnvwek¦ GgbB| GB djvd‡ji ÎywUi gvÎv gvÎ 0.4%| GB gnvwek¦I wPiKvj c«mvwiZ n‡e, Z‡e c«mvi‡Yi nvi µgk Kg‡e| Z‡e KL‡bvB G‡Kev‡i ‡\_‡g hv‡e bv| Z‡e WvK© GbvwR© f~wgKv ivL‡j c«mviY ïi“‡Z \_vg‡jI Avevi ‡e‡o hv‡e| cwiYwZ n‡e ‡mB Db¥y³ gnvwe‡k¦i g‡ZvB|

AviI wKQy Kgm¤¢ve¨ NUbv NU‡Z cv‡i gnRvwe‡k¦i fv‡M¨| Gi GKwU n‡jv weM evDÝ| GUv Avm‡j gnvwek¦ m¤ú‡K© PµvKvi g‡W‡ji GKwU Ask| GwU Abymv‡i, gnvwek¦ ïi“ n‡qwQj m¼ywPZ Ae¯’v ‡\_‡K| Avi ‡mB m¼ywPZ Ae¯’vUv G‡mwQj Zvi c~e©eZ©x GKwU c«mviY ‡\_‡g wM‡q ¸wU‡q hvIqvi gva¨‡g| Gfv‡eB gnvwek¦ G‡Ki ci m¼ywPZ I c«mvwiZ n‡”Q| G‡Ki ci NU‡Q weM e¨vs I weM µvÂ| G R‡b¨B GB g‡W‡ji bvg PµvKvi g‡Wj|

weÁvbxiv ej‡Qb AviI GKwU m¤¢vebvi K\_v| Gi bvg weM ¯­vc© (Big Slurp)| ¯­vc© A\_© M«vm Kiv ev M«vm Kivi mgq m…ó kã| G ZË¡ Abymv‡i gnvwek¦ GLb bKj f¨vKyqvg Ae¯’vq Av‡Q| ‡h‡Kv‡bv mgq P‡j ‡h‡Z cv‡i c«K…Z f¨vKyqv‡g| c«K…wZi ‡h‡Kv‡bv ‡fŠZ c«wµqv memgq mwe©wb‡gœi kw³i Ae¯’v‡b \_vK‡Z Pvq| Avi gnvwek¦ me©wbgœ kw³i Ae¯’vq \_vK‡jB ‡Kej c«K…Z f¨vKyqv‡g \_vK‡e| GLb ‡mUv bvI n‡Z cv‡i| nqZ gnvwek¦ GLb D”PZi kw³i Ae¯’v‡b Av‡Q| Zvi gv‡b Av‡Q bKj f¨vKyqvg Ae¯’vq| ‡m‡¶‡Î ‡h‡Kv‡bv mgq GwU Avmj f¨vKyqv‡g P‡j hv‡e| Zvi mv‡\_ mv‡\_ Avg~j cv‡ë hv‡e Avgv‡`i wPi‡Pbv gnvwek¦| ‡fŠZ a«yeK‡`i gvb e`‡j ‡h‡Z cv‡i| cv‡ë ‡h‡Z cv‡i Av‡jvi ‡e‡Mi gvb wKsev A¨v‡fv‡M‡W«v a«yeK| d‡j ¯’vb, Kvj, e¯—y I kw³i aviYv GK`g e`‡j ‡h‡Z cv‡i| nqZ AvMvg ‡Kv‡bv m‡¼Z bv w`‡qB aŸsm n‡q hv‡e gnvwek¦|

welqwU wb‡q we¯—vwiZ Av‡jvPbv Kiv n‡q‡Q GMvik I Z…Zxq Aa¨v‡q|

cwiwkó-L (Abyev`K)

weÁvb Kxfv‡e KvR K‡i?

weÁvb Kx, Kxfv‡e KvR K‡i ‡mUv wb‡q Avgv‡`i mgv‡Ri Lye Kg gvby‡liB aviYv Av‡Q e‡j g‡b nq| weÁv‡bi wKQy wKQy welq wb‡q weZ‡Ki« KviYI m¤¢eZ GUvB| weÁvb Kx I Kxfv‡e KvR K‡i G wel‡q A¨v we«dvi wnw÷« Ae UvBg eB‡qi Z…Zxq Aa¨v‡q w÷‡db nwKs h‡\_ó Av‡jvPbv K‡i‡Qb| GB eB‡qi Abyev`K Abyev` K‡i‡Qb ‡m eBwUI| GLv‡b Zvi Av‡jv‡KB ms‡¶‡c ejwQ|

weÁvb g~jZ A‡bK¸‡jv ‰eÁvwbK Z‡Ë¡i mgv‡ek| Avi ‰eÁvwbK ZË¡ n‡jv GKwU g‡Wj, hv ch©‡e¶‡Y cvIqv NUbv‡K e¨vL¨v Ki‡Z cvi‡e Ges fwel¨‡Z Kx NU‡Z cv‡i ‡mUv m¤ú‡K© mywbw`©ó Abygvb ev c~e©vfvm w`‡Z cvi‡e| ‰eÁvwbK ZË¡‡K KL‡bvB mwVK ejv hvq bv| Z‡Ë¡i c~e©vfvm cwieZ©x ch©‡e¶‡Yi mv‡\_ nvRvievi wg‡jI ‡M‡jI Avcwb ej‡Z cvi‡eb bv ZË¡Uv mwVK ev wbuLyZ| n‡Z cv‡i, c‡iieviB c~e©vfvm fyj n‡q hv‡e|

cwimsL¨vbwe` RR© e‡·i K\_vwU ZvB h\_v\_©, Òme g‡WjB fyj, Z‡e wKQy g‡Wj Kvh©Ki|Ò

cwimsL¨v‡bi QvÎ I wk¶K nIqvi myev‡` ‰eÁvwbK c×wZi mv‡\_ m¤úK©Uv Av‡iKUy Mfxi Avgvi| cwimsL¨v‡b Avgiv ‡WUv ev DcvË wb‡q KvR Kwi| Zvici ‡mUv ‡\_‡K me‡P‡q fvj fvj g‡Wj w`‡q ‡c«wWKkb ev c~e©vbygvb Kwi| ‡h g‡Wj me‡P‡q fv‡jvfv‡e c~e©vbygvb w`‡Z cvi, ‡mUv wb‡q AviI KvR Kwi| RR© e‡·i K\_v Abymv‡iB, ‡Kv‡bv g‡WjB ev¯—e RMZ‡K mwVKfv‡e e¨vL¨v Ki‡Z cv‡i bv| wKš‘ hZUyKy cv‡i ‡mUv ev¯—e KvRK‡gi« R‡b¨ h‡\_ó| Kvh©Ki|

‰eÁvwbK ZË¡¸‡jvI ch©‡e¶‡Y cvIqv Z\_¨-DcvË wb‡q Gfv‡eB KvR K‡i| D`vniY wn‡m‡e ejv hvq, wbDU‡bi gnvKl©xq Z‡Ë¡i K\_v| A‡bK my›`i ZË¡| wKš‘ Avgiv Rvwb, GUv Avm‡j GKwU ÎywUc~Y© ZË¡| eya M«‡ni K¶c‡\_i mwVK e¨vL¨v ZË¡wU w`‡Z cv‡iwb| ‡hUv ‡c‡i‡Q AvBb÷vB‡bi mvwe©K Av‡cw¶K ZË¡| wKš‘ Avgiv AviI Rvwb, wbDU‡bi ZË¡ fyj n‡jI Kvh©Ki| GB ZË¡ w`‡qB gnvKv‡k hvb cvVv‡bv nq| hw`I eo f‡ii e¯—yi ‡¶‡Î ZË¡wU fyj dj ‡`q| wbDU‡bi MwZwe`¨vI me iKg MwZ‡K e¨vL¨v Ki‡Z cv‡i bv| e¨\_© AwZcvigvYweK RM‡Zi KYvi MwZi e¨L¨v w`‡Z| ev Av‡jvi ‡e‡Mi KvQvKvwQ ‡e‡M Pjvi e¯—yi MwZi mwVK weeiY w`‡Z| wPivqZ MwZwe`¨v K…òe¯—yi wewKiY e¨vL¨v Ki‡Z cv‡i bv| cv‡i bv Av‡jvKZwor wµqv wKsev nvB‡W«v‡R‡bi g‡Zv mij cigvYyi e¨vL¨v w`‡Z|

wbDU‡bi Z‡Ë¡i e`‡j Avmv AvBb÷vB‡bi mvwe©K Av‡c¶ ZË¡I wK wbLyuZ? weÁvbxiv GLbB Rv‡bb, ZË¡Uvq fyj Av‡Q| hw`I 2015 mv‡ji gnvKl© Zi½ Avwe®‹v‡ii gva¨‡g ZË¡wU wb‡Ri kw³i Rvbvb w`‡q‡Q| wKš‘ H ‡h GKB K\_v| ZË¡Uv Kvh©Ki| wKš‘ mwVK `vwe Kiv hv‡e bv|

AvKv‡k M«n‡`i G‡jv‡g‡jv PjvPj ‡`‡L c«vPxb wM«K ‡R¨vwZwe©` U‡jwg e‡jwQ‡jb, c…w\_ex gnvwe‡k¦i ‡K›`«| mevB c…w\_ex‡K ‡K›`« K‡i Nyi‡Q| Nyi‡Q M«nivI c…w\_exi Pviw`‡K wbR wbR K¶c‡\_| Z‡e M«niv Avevi wb‡Ri K¶c‡\_i g‡a¨B Av‡iKwU ‡QvU e…ËvKvi K¶c‡\_I Nyi‡Q| Gi gva¨‡g M«n‡`i G‡jv‡g‡jv PjvP‡ji `vi“Y e¨vL¨v cvIqv ‡Mj| ZË¡wU `vi“Y c«ksmv Kyovj| wKš‘ ZË¡wU Abymv‡i Pvu` I c…w\_exi `~iZ¡ gv‡Sgv‡S A‡a©K mvaviY `~i‡Z¡i A‡a©K n‡q hvIqvi K\_v| hv fyj| Gfv‡e fvj GB ZË¡I fyj c«gvwYZ nq|

wPÎ: U‡jwgi g‡Wj

[U‡jwgi g‡W‡j c…w\_exi Ae¯’vb wQj gnvwe‡k¦i ‡K‡›`«, Ges G‡K wN‡i ivLv AvUwU ‡MvjK gnvKv‡ki me¸‡jv e¯—y‡K aviY K‡i ‡i‡LwQj|]

GK K\_vq, ‡Kv‡bv ZË¡B mwVK bq| wbQK Kvh©Ki| Kv‡R jvwM‡q `vi“Y wKQy KvR Kiv hvq GB hv|

ZvB weÁvb ev ‡Kv‡bv ‰eÁvwbK ZË¡ m¤ú‡K© ejv hvq bv, Avwg G‡K mZ¨ e‡j gvbwQ| Avevi GUvI ejv hvq bv ‡h G‡K Avwg cwiZ¨vM Kie| eis hZw`b Kv‡R jv‡M e¨envi Kie| ZvB ag© I ‡Kv‡bv ‰eÁvwbK Z‡Ë¡i GKUv‡K Av‡iKUvi wec‡¶ e¨envi Kivi PP©v ‡\_‡K ‡ewi‡q Avmv `iKvi| AviI `iKvi mnbkxjZvi PP©v| wRwbmUvi A‡bK Afve eZ©gvb mg‡q|

d¬¨vc

‡jLK cwiPwZ

cj ‡Wwfm

Bs‡iR c`v\_©we`| eZ©gv‡b hy³iv‡ó«i A¨vwi‡Rvbv ‡÷U BDwbfvwm©wUi Aa¨vcK| hy³ Av‡Qb K¨wj‡dvwb©qvi P¨vcg¨vb BDwbfvwm©wUi Bbw÷wUDU di ‡Kvqv›Uvg ÷vwWR c«wZôv‡bi mv‡\_I| Gi Av‡M Ab¨v‡b¨i g‡a¨ BDwbfvwm©wU Ae K¨vgwe«R I BDwbfvwm©wU K‡jR jÛ‡bI Aa¨vcbv K‡i‡Qb| M‡elYvi welq Km‡gvjwR (gnvwek¦ZË¡), ‡Kvqv›Uvg ‡¶Î ZË¡ I A¨v‡÷«vev‡qvjwR|

wZwbB c«\_g ‡hŠ\_ GKwU M‡elYvc‡Î ‡`wL‡q‡Qb, nwKs wewKi‡Yi gva¨‡g e­¨vK ‡nvj ev®úxf~Z nIqvi R‡b¨ Av‡kcv‡ki GjvKv ‡\_‡K e­¨vK ‡nv‡ji g‡a¨ FYvZ¥K kw³i c«‡ek `vqx| GQvovI `xN© mgq KvR K‡i‡Qb mgq wb‡q|

weÁvb‡K Rbwc«q Kivi Kv‡R Zvui Ae`vb Amvgvb¨| A‡bK¸‡jv ‡UKwb‡Kj I Rbwc«q eB‡qi ‡jLK wZwb| ‡UKwb‡Kj eB‡qi g‡a¨ Ab¨Zg `¨ wdwR· Ae UvBg A¨vwm‡gwU« (1974)| GQvovI wj‡L‡Qb Rbwc«q eB `¨ GR Ae BbwdwbwU, `¨ ivbI‡q BDwbfvm©, `¨ KmwgK e­ywc«›U, A¨vevDU UvBg: AvBb÷vBbÕm AvbwdwbkW weR‡bm, ‡Kvqv›Uvg A¨vm‡c±m Ae jvBd BZ¨vw`|

f~wlZ n‡q‡Qb A‡bK¸‡jv cyi®‹v‡i| hvi g‡a¨ Ab¨Zg BD‡iKv c«vBR, ‡Kjwfb c`K, d¨viv‡W c«vBR I ‡U‡¤újUb c«vBR|

Abyev`K cwiwPwZ

Avãyj¨vn Avw`j gvngy`|

cvebv K¨v‡WU K‡j‡R cwimsL¨vb wefv‡Mi c«fvlK wn‡m‡e Kgi«Z| Gi Av‡M wimvP© A¨vwm÷¨v›U wn‡m‡e KvR K‡i‡Qb BwÄwbqvm© A¨vÛ A¨vWfvBRim wjwg‡UW (EAL) c«wZôv‡b| XvKv wek¦we`¨vj‡qi cwimsL¨vb wefvM ‡\_‡K Abvm© I gv÷vm© wWwM« AR©b K‡i‡Qb|

‡jLv‡jwLi m~Pbv MwYZ g¨vMvwRb cvB wR‡iv Uy BbwdwbwUi gva¨‡g| Kw›U«weDUi wn‡m‡e KvR K‡i‡Qb c«\_g Av‡jv cwiev‡ii gvwmK weÁvb g¨vMvwRb weÁvbwPš—vq| wK‡kviAv‡jv, e¨vcbmn wewfbœ g¨vMvwR‡b wbqwgZ wjL‡Qb MwYZ, cwimsL¨vb I ‡R¨vwZwe©Ávb wb‡q| GQvov weÁvb wel‡q AbjvB‡bI mwµqfv‡e ‡jLv‡jwL Ki‡Qb|

evsjvq ‡R¨vwZwe©Ávb‡K Rbwc«qKiY I mn‡R Dc¯’vcb Kivi R‡b¨ ‰Zwi K‡i‡Qb AbjvBb ‡cvU©vj wek¦ WU Kg (sky.bishwo.com)| GKB D‡Ï‡k¨ cwimsL¨vb I ‡WUv mv‡qÝ wb‡q ‰Zwi K‡i‡Qb Stat Mania (www.statmania.info)|

wc«q kL: bZyb wKQy ‡kLv (we‡kl K‡i MwYZ I ‡R¨vwZwe©Ávb), ‡c«vM«vwgs, ågY I iv‡Zi AvKvk ch©‡e¶Y|

‰cwÎK wbevm: j²xcyi m`i Dc‡Rjvi SvDWMx M«vg|

‡jL‡Ki Ab¨ eB

• A¨v we«dvi wnw÷« Ae UvBg (2017) (Abyev`, g~j w÷‡dK nwKs I wjIbv`© ‡¤­vwW‡bv)

• gnvwe‡k¦i mxgvbv (2019)

• Amxg mgxKiY (2019)

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Qwe: mvjgv wmwÏKv