

N{Zb}l {n "Ap{N}nUb{"

p{Zt{- N? ø. H*. m}p{m}p{

(Ap{N}nUb{T}o| ønx{p^2d{N}pU=. p{d{TmU{
f}mW|_}zx m^= p{Ad{N}n=0%bCbç Jd} p}ZNY
b{NH=_%pU}Uz= D=bç

Ap{N}nUb{q{=Q}mEi=c{ N}b{ - b{umkNç
p{Q}Ub{p{OÚN}dç. ðW|ðN{N=n=Q} T{p b{
E{p{O=Q} N{e=T - zE^}n p{d{ F _{p{h p{d{
m}Vñî j %cd{ p{_{ p{}}=_{T{hEn}. C d}n{Q{Z%
m}Vñî øzl {n Ap{N}nUb{ç%_zO p{d{
z=Eb}l {Q{a}n p{Zp{d{ç o{p{k; zE^ p{d{h} Q}ð
F _{p{h p{d{h} Q}ð T{z|O\{N{e\} ø{Qød{p}wSä
EN{î ü{b{c}Udç D=ç_{m}l {n p{d{z{n î p{d{çU{ç
ü{b{@cN}mç T{e{d}\{.

N{Zb}l {n en{N{i wSä N{ç_{ø=_Q} D=Z|l ..
ø{Qød{N{p{N{ç\ç KN{p^2mZ _dç N{O{D} =b{ç
_ñ{Q{zb}b% N}ð z=k}z^n n}m}l {Z=0%@_d{
zp{N}÷d{p}Úp{çimN{k}zð E{l ç{Q{çT}\{ç
@ðe{D} =bç ü{Z{N{N{çO{D} Db}zx m{çö{O C p}Uz= çp{ç%
B{d}d}O.

C "@d{p}b€" D6Q€ d}mNf}N€Q} em{zL{C
N}p}ÚŒŒ p{f} [N{nN{ ùóð€_ {AzNNn€Q}
@=bW {UZ=. @=b{pT}o| pindñ p bó? {UZ=
VmQ€bç N}ð N¼T² m{ç T{ e=TZ= N¾z= p²·bZ¾
øöi ·D{m, p{c{mñ pindŒŒ N¼_ pñN{ BZ·d}Œd{.
J_p{©o|ðŒ ũ p{€ p²NZm}l {q}# z=i pñ p}ÚŒŒ_¾
Tb{pZ|ðŒ ø=ç=bçob{. Hd³Œ ø=_ø=_ŒL ©Q}n",
@b{Œ_p²d{k}pçŪ}n NœeD}l · C N}pŪ=¾ Nq{N{
m{EnN{ C "@d{p}b€" Npñ= _¼p²Z·Q} p{f}Ū€
DzL ©Q€\{ {=bñ, p{d{N}p}ÚŒŒ zBl {=Q}
Tb{p{N¾p}nd{N¾mNŒ NœQ€ç Ū½ q√ D·=bñ
k}øZ·d}Œ.

N{zb{m}l {n· 1474 Ū}= _}B¾zLZ; 1509¾m}W;
@d{N{bQβVl {n· T€, 1515-16B¾øVl {p}\N{
pÿä, @NÁ\NcbQp¾DdŒ ŪN}N{w}=Œ {p{ü øZ· p{ð
µø=T{ { (C ŪN}N{w€ øq}OzZ^= b{mb{N}b{,
øVl {p}\{b{mb}. IN}bñ d}\{Dzp}z= T{€\{. A
z{^Ūbd}d{ m}Ū d}n·Q¾W|p{d{A "A=Œ{
VnW|x{\{" @_Œ NŒ¾Œ Ūxp{f} \{- "o{f{n·\e{\
o{ |z| o{f{¾}. çm{dp{ß_¾Bo| @d}Œ\{-
"m{N{n· p²T{Z· p{b}nzTmŪ {zöNp{ k}p€, cßð,
pŪ=QŪ= p{wø=ç z_}Ūpç{ Œ^d€ T{eŒp{
p{z{m}^}n Nq{Œm{zNñ Nq{u}m{z=Qz =
_I {m{T{p{ Ū¾ñ f}f}n· HQm{¾ Z·
W|dç=_}p{^ð øðe=T{p{ m{z{p{=Vmçp²·bóð{
p{c{mN}p}Ūñ· m{ç=T{p{ - @ñŒ Qm{ß^k}z¾ Bo|Z;

ñN{ A=ĉ{k}z @u}cŭp{? p{N{ ĉi Q} L Nĉi
đmĉ=T{. d} @p{m}b³/b⁴Ń Q{mĉ Tf}Ńo| @đ ñN{
z=b³/z = m}p¹/T{Ē N{Ń}p{mĉo³z`b}p{`ĉĒd{
z«nbĉ`ñ` pđN}\{ĉ ĉ i z`N{d}Ńd{ - @_đ{
p{Qp}\}l ²! ũmĉQĉo³/_đ{p{`=b{Q} cĉmĉd{
z«bĉ`ŃŃ d}NĉĒd{p{ ĉ}ũmĉ eýä Tĉ`N{d}ŃŃ A
N¹/m{ ĉi mĉŃ{d}N{. dŃ{ _ñ`Q{m}l {`Ń, d{p³/
NđŃ\m}l {`Ń. Nđ{N{d{p{Ń A p{ e=NĒd{ Tĉ @bĉ
z«ĐQ} i mĉ¹/₂ {`=bĉ _ñ`Q²=b{NĉZ|p}? Bbĉ
_ñ`Q{bŃĉ, dŃ{ _ñ`Q{p{ĉk{ĉ; NñNĉ`Ń|Ziĉl {Ūpĉ
_ñ`Q{ Hd³/Ń k}z³/p{Ē\ñN{ _z`b} @đŃz³/đĉ
D_{ĀĒ²=bĉ ĉ`Qđ! C Nĉi đ ñ BĒb³/p²d{
p²NzqŃm{\Nĉ=Nĉĉ T? Ū - p{N{ kŃĉ oŃ{. Bo|
Tĉ ñN{ DĒm³/Dm}Ńp{ŃŃNĉ`Q{ {`=bĉ @đ Ad{ TĒ\{.
p²Zd{đŃ{p{ñ`Āđ, bŃ}nl {đNĉpýä u}BŃđ
bĉmĉ=T{N{đ, _ĉp}m{Ńđ=\{zkŃ³/bĉ`đ}a{u}p{=_ñ
zđ{ñ` _ŃmQ} p{Qĉĉ p{p{Ń}=Q{p{đŃŃ mĉŃ=ĉ p}wĀNĉ
Nñ Q{mĉĉ Ńp{mĉT{\m}l {ñ. p}wŃä H=_³/Adĉbĉĉ
A zŃf}ŃđŃ Ńp{ĉ=ĉ b}Ē³/đ @đŃ @=q}n^a
p{=QwĒb²/d{pđ _ŃĒu}v i zp{m}=Q{^ u}mŃkĀp{`Āđ{
@_đ{ A=ĉ{p{ü Ńz`{\N³/m{ŃĉĉQ} Āp{N{p{ñŪbđ
đmĉ=T{p{d}Ńm{. @_đ{ Nĉ` \} z=_³/z=Q} N}p{ũm{đNĉ
z«d{N{d}Ń\{. 1521 d}ZiNĉBbĉz«Đ{ `=bđ
zmq³/cN{ñ @ŃŃ}l {=. 1530o³/m}l {ñ`
p{m{ĉT{\ĉZ|m{.)

f}=\Ū p{=`ñ=.

øöi "d' m' d' m'.

AN}q}dQ=Z.p\h". p}ZjDb}Úd}p}d}B%4HNA\{
T{t}d} Ad{b{Q} N{d}dQ çnNh", N%4 "wä. A
p\h ü"b} p{"B%4T{d}{çnNh j 1/p}\Un". T{t
p}wäNCA j 1/p}\Üo}dV=Q} N{d}d}Öl }| @de}l }.

üc{n" øq}n=Q}, î dQ} DdQl }. Bwä b}Bm}n ü"b{
"Id{Q{n" VnN}o|\d}dQ nx}b}" i=Q}m' ç}n".
b}Bm}n p%2Z%4I d{Q{n, t=Ü n p{mN}l}j 1/p}\Un".
p}Nwä p{"=b{ f}Z; N%4 x mCTE'.

m%2\{ e}d}m}n}d}Öl }| Ew%ä - KNZ; nx}b{ç
p{mN}Z; ø}p}b{ç

eZ}e' e«z"N{d} N%4d%4u}Öd}n" T{ Üz m}z«VN%4z=
ò=b}d%4n}wä ð=e}N{d} T{ }p{m}«n_3/4
d{ }d}Öm{ }ø\}n", k}N}n" f}\{N{=Z}.
Bz}Ö\p{"=b}Q}ð }n}B_ }p}wä D_}âz =Q}
i=_ }o|Zn" A\}Ö\{T{ }\}ö!

@m{Q{n ü"b{N{m{A}D}D}z=Q} f}çN}|\{ }dQ
AZp{h{ö} Ip{d} p{h}T}Q{h=? zd}Üt}N}d} Q{=^2V}P
p{de=T}Cu}m}øt}m}Z}Ö\{ p}wä N{N} }n Tz}Ö\{.
p{d}Üa}\ }Hb{m{Q} p}çAd} eZ}T{N%4b}ç}p}wä AZ
_d}Ül } }=. B=}Ü }d} zm}@N}N}co|N%4AT}Ebç
k}N{ö} T{ }l}ç }Z. o} p}wä eZ}d}p{u}Ám} k}ç}Q}p{.
i W| }Vd}ç Q{= }ö} N%4t}ø Anl }|d{Ö=ç p}T}E
q}çOd}b}ç ødZ|d}N}ç }hî e}Öd}Ö\{ }m}Q}d}p}wä
N%4T{ }z}n". BN{p}wä p{ }=ç E}z}Q} f}çN}ö} p}a

A E'z'NCW|md {eZô mē\¼l'¼zôN'd|b+q|
T'p\QôQd {p}wšä cê{Ün"!

J_¶A p¶Ün" u}p{|d{Ün" N}m|. T'p'Z=_¾·Hprnc
N{np²d} T'eô o³N¶|dê, ebnN{o³zê\{øZ"ôô
AbnêT'p{=ç_dê, m}i N{mē\¼@=_z'mfo|
D=\QôQ¶u;k}QÜ=, I k}zo³dê} Nø_ß= T'zôQôQ¶
f}=\çÜ= N'p\} Dd}ôl " p}wšNê p}wš=_ {
z'N{p{|m{n=Z. - çn"= zD{=bô i=Q}m| Akm^}n"
pboê p{ }Ün üm}o¶p'z'N{=Z|m|; ê\{zD{=bô
z|d{Q{ô b'p m{Q} D=ç N'z' m'd|z«z'N{=Z|m|; _¶{
D=Z"=bô z«nô pboê z'Q{cc'f}o¶ p}_}m|;
ën"Q{Q{Äh" _zô Kê{N'd|p{ _N{Q{Äô b'QmN'd
m}ôl {Üm|.

z'mQ{Qô¼î mQpçAdZêeê}l " A Ewšä î m{Q{ _{=\|
z'z'n" - u}ôd}ôNçp{=b{ü}ø\}=Qdñ"
z'z'z'N¼p{Ün" @mQb'êd {p²z' N{b{z\{N'dô=b{p'p!

p{p{wš N}npô¼_êZp{bñ" z\p{=Z.@ø p{b| }|dô
@NÄ\{u}ôd}n" T'êdp}wšp{¼p{m'f¼ " d{Q{Q{ô
p}Zp' î l {Üj ¼}m| p{m'N}zô| p}wšä. i m}
b'QmN'wäz m'N'CA p{bñ" o¶ z m'Q\ }|l " - @ø m'NÄb¼
_ñn" b'p m'êôüf½ {dô j }_ñn" QdN{ @bçT'p'z
NÄNÄ d{p'ß _{=Z|m| e'ê N}zô| N}z' dô @p{|Ül "n"!

KN{zNÄ _¾zô¼omQ{ a'êd{z«n". p}Z{Nçf¼zQ}
p{m³zNÄ emQd {z=Zp²'NÄn"! A z=Zf»o|b¼HNÄ\ {
T'p'êd} N¼Qñ"!

z=ZN}m{o¼m_ {n p{wao¾ñwšä i tD}m}. @z|Ö\{
Em{p²·NÁn p{wao¾NCK=Qf¼ · @NÁ\{dÔ Nh pē«n
ù·b{z\{I ÷. A p²·NÁn p{wá_¾_}QZ|ðNcñwšä
b¼mNÁ A p{wáð_ñù·bNc_T\EN}ð Nh pē«n
p{Nm{b_}QCN\{z|ð=z|N{Z·d}Ôl } @ðeZ=b}
b{qÜ= T{Z=Z!

eD}i =\ñ}wá=_ {pñ{zdzN}l {n z=\{ }l {NÁ\{
KN¾Áu}m@ø dD¾d}zQö mē= i l {Zn¼b}ðN¾z=
Q{=z|n·Q} p{©Q\{I ÷_ {p²Übh}. @o|Zz|Ö\{
øzmY{Q} p{b_ N}m{Z·dÔ I d{Q{D} NðeD}l {ø!

@NÁ\{z·Q{c@·mZzwsä Tz ed{=ç N{bcb}N}
Qñn·Qñn·Q} p{D|\{ {=Zl ÷. Tm{N\¾ZD¾
f¼NTz©, _p{nf}N{iQñª Nª\{bZ=Q}
em{Q\}l {NÁ\{ @z|Ö\z|Ö\{A f¼NTz N¼p{Ùn
i m{p{NCTm{N{Tz ømQp}Z;p{ }Ùn zNÁd}j h=
p{f\}f>l ·ÜD¾z\z·dÔp{Á_I ÷. @o| f¼Nñ,
AN{n, z·dÔ= Nðt @NÁ\NÁ\{z=\{I ÷.

BN{p{ }ø\ç¾z|n H=_Q} z«tp{d}Ôl {=Z. @NÁ\NÁ\{
DdÔ f}_ {ñZQ{=ZD¾z\{A p{ }ø\z«n ù·bQ} p{d{
ü l ·Q} d\çf¼p{T\Æ A Q{=ZD¾p}nQTñn
øD}m{Q} D=Z. p}Zð î dZ|ðNcñZn¾šä p²\{KNÁZ;
zÔ ø·Q\} qñm{ @= } ñwao¾eZ;pZ|\{ {=Zl ÷.
T{Z|ðNcø=_Q} D=Z·=b{ç

p{d}Ôm{ N{z}u}Bø· A p{w¾ pðtp{d}Ô\{. p}wá

ð_Üi ø_}n" A u}Bø" ¼QZU} p{ \E\F½ "d{ +-
u}l {=N}n=pWp¼x=zn" mNÁn" N¼E·N{=Z© Ü¼Ü¼
@ð qÜn" T¼ª Qª wãNcf½ {=Z.@ø A u}Bø" Q{wª
k¼N¼ N¼x w¼n qÜnðeDl +p}wãNç A u}Bø" p{x}d{
DdÜ _{nþp{nd{ }Nc@NÁ\CTEÜ}n"n" p}wã j }cÜÜ
f¼Q¼¼ {I +; m}Ü {B¼Q}öNCA Q{\QçZn p© _N¼N¼pñ
T¼E© p{dÜ z=z=QCTZø¼E\{N{dÜ ex{ñ" oç @mÜ
Hp}m{ ¼bd{Nçð @nN¼DdÜ bçz {ñ" bÜmÀ }m{;
Bwãp{=b{H=\j ¼d{c}d}ÜÜÜ b{wç} ë=NçP
j ¼N¼Á_ {=Z.N}zo| N}D dÜ @p{ÜÜ "ñ" b}ðNcd¼eÜ
NñN¼Á=\} b¼ ¼ ¼|o| @ð TªD}m{ - zDz\T{ñ"
e\QçzB¼ð=z|N{dÜ Nñ"pç«n bç\ñ" @p{Ü_ª
@N¼\¼A QçzöÜ bçT{Nçð Nªm{E=Z|m{; A
z«nbç\B¼ë=NçDð _D|m} @p{ÜÜ "ñ".

A u}Bø" k{opnd} pÜ T}n" p}wãNCH= ¼
k{N¼mp}D¼Aî aÜ= BD}m{ A pçmçp}w¼ä.

øE çD{\d{p{ü kN\{Apçmç}Qç{ {B¼DD}ç{\.
Üx mdzÜ\© _ç{x -bI {=o¼c}ÜÜE=Z|\{ç}. A
Nç{zu}Bø" Nçz«nbç\ñ" N¼E·N=NmÜ= T¼ {ÜZ= @_Ü
p{dç NcdçAd{zð. d}ÜÜ {=Q} z=f}l "=çd{\{ "×_¼
A pçmçQ{=\} p}wã i m{ {Ü N{ñNc@dÜb}d}n"
T¼E=Z|\{ç}.

p{i "×NççP zN¼E p{ç N{mçd} zmH=\ç{
N¼ ×mç ¼\}n" pçZTm{Q} p}\çm{ñN}n pçZn"
T¼E=b{Ü k}mÜ. N¼ ×mçzÜn QmZB¼pñc@dÜ=,

T}l {ææ|0, d}n"Ůb} _}ö=æ' Næmh", pλŒ }|n",
pñ{Q}n", em{Q}, d} "Úzbl {=Q} pλŒç @î a{ñNç
î ðeD}\{d}.

@b{H=}\}N}n=0¾J _{p{='=b{Q} æ«z"N¾Z| ðNCT{bðŒ
BçÆ _ñ}β _{d{öpTÆZ;@dŒ=_¾f}Z: î l {Ú;T}m{,
p{ÈQ{z|n"z", ænÆZ;@=i wšä, m{N{N}n Næmh"
p{D}\}. BN{ }QZ| ðNCT{ñ{N{ mæ=, N¼ ×māwšä,
TÆZ;ñwšä, p{ÈQ{ Ho|Qæ D=Z|l ".

TŒN}n=0¾p{p{Œm}Vd}n pñ{dŒ= p{ŒZ: =bç
ø'mŒ }|n f»\}n". T}l "Úp{ð qŒn" T{dŒ Næmh".
p{N{ÁVn"i" pñ{Q{ÆAp{Æd{zTÆwšä, f}l {z=,
EmQ}l }n", T} "ÚT{m{N{Ad}d} "Ú, j }Q} N}çd{
f}n".

qŒp}m}D¾H=_¾p{='=bçzmb{p{z}pñ" @_ŒNç@î a{ñ"Q}
D=Z|m{. p}wšä k¾Wd}ðNçp{='=b{ @m{T} {D¾BzŒe=\ç
p{DŒ æZ{N{ð b}ðü"b{@m{Z}æ«p{b{zŒ0¾dŒ=\} dŒd²
f{z"N{ð KN{ }Z;çpñ{Dî Nd{Q{ññ"Œ=T{N{ð IZ}Nç
f¼ " _ñu}Œd}n" T{ p{z} =Z|m{.

@ñ{ñ}Ÿ p{w{d} zm{@_Œ=Z¾z{p{z,^ÚN{ }N{dŒŒ,
Ÿ}ø\p{ }n f}m}l {^=_¾f}Z: "Næmh{N{ÁpQ} o{p{
DdŒù T{p} \f¼ "d{ ÷, e=\p{zñ" ð=\{N{dŒl ÷,
@dŒ= Næ\{@=_ {z{z{Q} o{p{, Ho|Q¾| b{ {T{
zŒN¾\ç @d{p{ }|Zn" øðe{z} =Zl ÷!

.....

A N}n=0¾f}=\Üp{=\ø|ðNcm}Vc}ð p{a{m} A p{mc
u; k}Q}ÜðNç u;=b{m}ÜðNcp{Q}b²zªmÜT{B{n Nª\}
Hæ|Õ\© Ap{mcT{Z©d{n m{Q}Lª D=Z|m}! @NÁ\ç
ÊVn q{m{n, øo|z{n. p}wå QW|qßbW}n bZ
oØø. @=QW¾d{m}ÖöÖ m}z{n f½
@p{Ü_{=Z|m}. Q½zÖ Db}Üd{p}n. p}Zp¾q}pÜ=Q
f}\{m{N}n ex{n. p{=b{Q} üD dÖ
p{nl {p}l{m}n.

A p{=\ø|ðNcm}í p{L{Ücßí \}. T{B{p{qk}ªz^{\}
u}mßkAp{\N}Áp{h}ed{@ðÖ Q{^}nª DdÖp}\.
Hæ|Õ\© ñî _zÖ\}. ÊVöÖ Ip{Ü{Ü{d½eÖ=TN{=\}
æd{Ön i z{N{=Z}\}. N¼\{h} øð @zN}m{ T? {Ü\}
p{ÖDî p²TÆ\}. emNz=b{d} æ d{Q} Tª\{.
zm}Üp{p{_}\}. p{ü b}_{

p{zø N}n=.

I yä=Nf½ m}wå ü'b{zZd{f}ç @Zn"Q} zQö=bç
Q{pßöÖ zZ|ðNç¾ {n @NÁ\NÁ\{ñwßa f½
b}N{Ád}Öm}. z\Q}öNcAN{oQmç{ø f}p{m}nd{N{ð
zZ{N¾pZ|ðNc\Qh p²Zz\d{+. TZñ\h N{b{
ðB{½{dÖ j}Zu}m{n A ñ\h¾Z.b½{N{=Z©
f½{d}Öm}. HNÁ\{Tª{ed} H=\{p}l{p}h.

Id{Q{n, z=b{n, b{dÖn i m{b}¾
f»H}\{dÖl+. Q}öNcb{p{Ü{Ncoç b}ð @=T{d{
Q{ @=Z{N{ð î m{Q}¾bç iª m{Q{N}l {n zQö p}Z;
bª bçed{HQ{m}¾bç H=\d{I{m¾}_}p{m}h b{Ön

ENINQeZdQl ÷. m}U}wšä N{NAN" D_}âzr=Q}
p"zWÖ _kfp{ _}dQl ÷. p{n"Q{TEn" j ¼m{ }B¼
b{mdI ÷. p©N}öi=Z;ñwäo¼öni \cTÖö
î=Z"dQl ÷ N¼Qñ". ñwšä H=\cNεbNcf¼ ¶ N¼Ö
@\{Q{d{b}N{AdQ j ¼"Ü\}l {n", T{ }TEn", A
k}B {z«DQ} H=\f¼ {N{TQ}N{Nε \}
î=Z"d}Öl {ø.

h² {n" _¾ZB¼I _}n" _¼N{A_ ε εbQ¼_ }B¼
f}\{ _f=Z.I _εj }dñ" ñwäo¼p{d{Q}L ε p{-bεQε
TεIÖwä_¾_}wε pÖ dQl ÷.

p{=\{Z³\hNc j ¼\{p{B³f»bñNc j ¼ ×oN}Al {dQÉ
εbεbÖp"Öñ" pεAdI ÷. Töε=bwäo¼Vnb{ }B}Q}
N\pÖ¼ñwšä f¼ε j }Zu}m{ñNcbεÖN{i m{Z d}Öm{
@NÁ\ε=\¶ {p{ {n". B=NNÁ\} bN{AoÖ p{dÜa}\{A
l {p{ {n b{ {p{A ε=bwäo¼_ñb}T{N{=Z"d}Ö\{!
b}zr=_¾"@p{Ü, @N}Á, N}εñÖwšä f»l {Ü=\c
@=Z© o¾εöNpεAd {KN\{b}zr = i mQ}d¶A
z=j ¾cdÖÖ p{mεf¼ " p}wä pεN{p{¶T ε z{n"
T{Z=Z.p}wšä Nε \{KNñN¼Nñ{ Nwä_¾εQñ" T{N}N{ö
d{p{BN{=Z© çdÖc}m{¾p}\Ncñwšä f¼Z d}Öm{.

#εm{z"n" bQ\{j }p{B¼f¼Zε\cKNwäü"b {KNwšä
ñwšä T{N}N{ö @öεf¼ " @NÁ\¶p{öñ p²b}d}B¼
öBf½ {d}Öm{. p{pW}p{d{p{ñ" N{ö Nöε
z" PÖ d}Öm} @b{Zpε _}n"!
H=\{¶NCTQ}ö f}mεf¼ "d} øzdKÖñ B=ÜW|n=_¾

b}dU z\Zd}Omł E Vn". I'kN\Q\h" dñN\ \c
Nεbε\{ {dQl + p{dUa\CT\ d{=ç W|mε¼ "d{
øP|Q}. j }p|B¼ñwšä @\{QεZ" {dQl +. @_{N{n
Tε}_wä_¼p}Zp̄ _¾\{ {d}Omł #n".

cQN{n" b¼mp{|ø\N}l {p{NAD¾ ñZ; \cf»l {Üb}N
_}ö=z| pεd{Tεi bñ l "Q{m¼p{c}ÚdQ= k¾Tε,
u}l {=N}n= A Tεn m{ç _ε|o¼D"=Z.o{Z³N}l {n
ñwä_¼p}Zp̄ f¼Q¼E N{=Z" d}Omł.

Vdε zQñ=_} _¾ZB¾d{Q\é u}l {=Ü}ðNCTm{N{
Q}d{Qñ bQñNCT\h\ {d}Omł.

B=_ó¼p{a{m{bQ¼p|dQ @wεm{z"=b{m} }z }su}Bø"
_εÖî m{d}wšä pçAd\ +.

zmb{ü }z Ü\¼N\{ A î m{d}wäNcpçEm}Vε|m¾\ _{\c
l "Z¾ø\ bTε\{. î m{d}wšä Tεε, @_ø Aî aÜ=ó¼
TñAZ; k¾Wdε Tε, _d{p{mNcεl }{^p}l {Ü\{.
m}Ü\ " =bç b}B¼p{a{mó¼L @m{Q{ ù"b{ø"Qöd{
j }Zu}m{D¾Nóε øq̄}=î Ncz=ç _ñQ\Q} εE N{
z\{N{d}Ô\{. N}nx{f}ðNcz{k}ε_}n" f}\Z=
p²"bóE\{.

zmQ @b{z p}l {=ó¼p{áÜcβV p{ü m}í _d{k¾Qø
bQñNci l {Qñ\}. @z|Ö\{øN¾z{k}ε_ε øðe=ç=bó|

-
"pñ}N}o|ðNcN}pñεd{p}Zp̄ ø"Qöd{dñB¾
Nε\Q\{ }=. m}Ü NcN}pñε=bózQñ". p{zö_d}ðNc

N}pht=bcl {pkdfo¼ @o|Q|zmo¼N}ðNCN}pht=bç
Nf \ { | o³Nfo¼d|zp{Nf m{AN¼p}ö. "

e\{Q|B|_QO| { | p{|Zn_ðNç _d{N ð _h·AN{d|
zmNcb{>O= pçA=bç TÛpD{÷Ô p{ü z|m{x ÷Ô Nf \}
I Z¼d}pó| Nbç NbhÔÉ· Nbö N}n= Ho| p©z=
Tf=b¼Ao¼ç=T{N{d}Ô\}. p²m{x|o|Zjx{Np²d{
m}Vk¼Q}n Q{mçç N}N{q}qß_ p²d{z_Ü= Q{mçç
øT}mçT}nd{N{d}Ô\}.

}=i a n= eÉö¼ç N¼ {p{B²i t _ó|mçT| {A
Û}z Û\NeÔ=T\}. pðNÁ î mQcl =ZjNçwä\}.
Db{ { | dÔ N¼n p{i mçob}ß=z n=bm eöe=T\}.
q}#}nñÔ Tf t p©xç pTfE p{|Nç I ø Z¼Nd {N{Áð
TzÔp{d}Ô\}. p}bç Qöç _dN{ {ß= TzÔQöQ|
p}mNö ómç;p|B|Zji=Q}m{d}^öÔ W%öö¼f¼ " =ç
p| \ b¥ " =T} \ { zkö¼

BNÁ \ {øöi "DfA¼-
øÉ çD \ { HzÔZ|Q|p{©np{ç=Üç Vedª _{ntep{ | nd{
p{d}Ôm{x u}ßø Nçzp{mÔ=T}¼ f=_ö¼A u}ßp|
Ü_Üxp{| \! çm{dp|ß_¼@_ðNçp{áÜçßi \ çmN
øp{ç=T\}. " d{p|ß p²Zd|p{a{mNçwä. @NÁ \ {m}i
p{ç=b{ @ñÔ _ö t dÉ· @p}N{nª Tp}N{nª pð dÔ
p}wä p{bç bçT}. d} p{ç p{ð ÜNZç=T}. f}=\{Üj
bÉp{|jT? +" @ð øo|z=Q} Ad{ TfE\}.

p{Nf¼ \ {øÉ çD \}
u}É=QçÁ \ { u}ßø Nç

"@l ©Uu}Bù"! q}#U†a}n p†N†d} T†\Ø p}†;
_¾Zo¾p{Zi_pßZ= _eõ d}N†_õl {b¶ d†{Ô
p}b}ðN†z=e_¶@NÁ\{ñN{VmQ¶@pp{d}d¶¶" @ð
p²·D{N{d}Ô\}.

"Q{^Ø E\pp{d}. ñw§ä _¾p{d}. z†N†
p²·l {Üp{d}. p{llnn" N†Zp{d}. W²\} îzÕp{d}.
ø=W|p{m{uT¶{d}. bz= pøQ†T¶{d}. @=_Q}ð
p}b}n" d}N²=b{N{ - l "Np{m{ b¼mN{Q¶} ñN{?" @ð
¶}c¶ {zÁ}\}.

@_ð k†N†z=_¾†=T¶\{ ûz mc ûb¶ p†N{†p†\}.
"B_ðÔ p}b{ø¾Qðed} T†\}" @d}Ô\{çöeQ}.
"@=_} ñ B†Zp{d} IøZj- pÿäm}p¾ +p†p}\!\}
d¶{d}ÔQ} @=_} Vmè=TZ|ðN†" @d}Ô\{
øż çD{\ç¾

çp{mNcHo|Q¾Kz|õN{d}Ô\{d}. m}í N†zēu}b{Q}
BpßZ|ðN†N}øwäo¾@m†n" zZ†T{N{ð il {G¶¶}
p{a{mN†
b}p¾î dZ|ðN†@_ð k}m¶ f»møw{Q}l {n" (p†\{\
òl {Ueõ=\ç j p= f}N†_¾T¶d{D=\ñ") N†Zi BçÆ=bç
ûî T¾Z| HzZ¾N¾T² p† {UZ|ðN†f}_p†p{U= (N†{ NñN{Á=\} p†\Z|ðN†Bo| T† {UZ= AT}m†),
q{G¶¶ zQ†j p= N†ed{u}=j }m{ ç=_e=\}. Hd¾Ô
Q¾p{h d† "U, em{Q{p{†l {lln", zçÆp{h{Q{ñ",
zēõn", z«W|u}p{llQ@_ð¾î l {G¶¶ ".

p{a{m{†m{¶}øż çD{\}. d{h{Q} m}Vzkn{çp{wä}\}.

@_ø b p u _V = 'l' e t m } i _ 3/4 z u z k e _ } V = N _ 3/4 o t
ð n i \ e b c m } i T e = c d { i = Q } m { A z d e ù b {
N e m { A d } Õ \ }.

@ z Õ Z p } N } p } b e u } Q D 1/2 ð z k e _ } ð q a { Õ Q }
p e \ e 1/2 = b c

"H = b { N p { A d e ? N } ð p ß = \ c d e f e m } l " p } i } ?"

d p ß _ e p } w a _ 3/4 @ d } Õ \ { ø z c d \ }

N 1/2 p } { Z e 3/4 d } p } w a o 3/4 { f } _ { n } _ ñ z N { d } Õ \ }.

c m { d p ß _ 3/4 m } i ð T e t \ }. " d { p ß p { c u p e Q } p e Z.

d } p } b e ø ð e d } " @ d } Õ \ { e 3/4

L ø b } ß = z \ e z e i m Q \ }. @ _ ø p } b e @ = _ } p e = b e

_ d { p } { Z e 3/4 o p e T \ }. b } e 3/4 K N 1/4 A N Á ø q e } d ð

i z N { ð z a x u = Q } O = \ e T \ }. p { c u o 3/4 p } { Z \ } 3/4 " d {

p } w a ð K N 3/4 A p } { Z _ 3/4 Z . p } m e T \ }. p } p a p z " b z p } \ c

b e m N 1/4 e _ d { e o } = _ e N e = c p } i ; K e Õ = c L \ e T \ }.

" z m B e Õ \ { T e Õ ñ p } b e I ø Z 3/4 " @ ð _ m } ß i p } i ;

N e \ { @ o | Q | Q ø T \ }. B o | @ = b m ð p m e Q } p } b e o 3/4

u } c e T \ }. ù z ù z a ù } n , D e ð z d { n b } ß m }

e m p } { _ ù _ } ß ð Õ ð m e = T \ }. _ m } ß _ { d } m } l { ^ \ \ }

A e m { { ß p } ð j 3/4 e T \ }. z N h k e _ } e 3/4 d e D = \ A _ ù

A ø z p } @ ð ø p m e T \ }. A ø z p } ð f » = b z | ð N c p } { A e

T e z z | ð N c p | = \ N ù N e c ß i n N a { ø ð e = T \ } -

ð ø p e q e o 3/4 c m u c ß i \ N e _ e ß i \ }. N e _ e ß i \ d e

N 1/4 { N { ø b e m }. ø _ e ß i \ c N 1/4 { N { P | = \ N { u \ }.

q e m \ }. N e _ e ß i \ c N 1/4 { N { N e c ß i \ }. ù z ù z ù ð .

p } y ä e m e m } V ù = N 3/4 z = k { { = N m l { b e T e m l . c p m N c

Nucb1 \cbi xNCP|=\N{U\} @\p{P}Nct}mē ½ \N.
m}VU= Qñ T{N{dQ Nucb1 \{W|ð QdN{m}VUgo|ðQ
Aú=TN{=\} l {Q}n T{t\}. L l {Q}p{p}l {=o¾@_ð
l {Q}c{p}ð L z|ö zZ{T{zZ=_¾f}l {úAð{ IøZð
F î ßN{ÁnÔ\Q{. p}wšä _p{Nc_ zbh, P|=\N{U\Nc
_ñ z'dñ T{eOm{ð¾ Nucb1 \{@o| T{ {UZ|ðNc
ðqAEL =T{N{ð P|=\N{U\cbQ{mNc{ ü'b{i l {Q{N{.
b}p¾p{dQ pQ{ñ p}wšä l | øzl {= P|=\N{U\NcT{ð
@_d{l {b}ðNc{b}p{l \N. J Nucb1 \{ _d{l {Q{
øzl {= T{eO l {b}ðNc{m}o{ð zOZ= T{t\{ðNc
T{Nc{NAd{qU{p}ð ø\c{eZ{ðñ, @_ðO T{zZp{
N{p}p{ñ P|=\N{U\Nc}¾c{T{m{ð p{=U{ñ.
zQp}wäð z=z m{TZp{m}Vc{m}p{ð øp{t{T{ñ.
J_q{m{ }Q{ \²p{c{Ad{p}î; T{zZ|ðNcKz|ON¾o{p{
P|=\N{U\}.
Nucb1 \Nc{f}l {úAðp{t{ñ T{eO z=e\}.
@o| T{t l {Q{ z«DCT{t\ Nucb1 \.
F î ßN{ÁnN{ @ññN{Hd¾Q b}d}n T{t\}.
P|=\N{U\NcQ{m{b{x}^ Bp}ßnð p{pä @_ð b{Q{Nc
pšä\}.
Dòx_ðxi x l {m{ P|=\N{U\c{p{=U{ñ. "B=_N{Z³
p{=ç @p{N}q{ b{¼m{b}. @_ð m}VU= @=_} i z'N¾'
@ð znü BT{Em{ðNc
N}ð ũz ũW|ð Nucb1 \cd{=ç m}VU= N¾mZ=
d{t{eO{ðNc @ðO f}f}÷O f{¼Z{obU _dNcT{zO{p{ð
Nucb1 î;@\Q{f{d{.
H=¾Aq{Em{z{ }\ Nucb1 \. @_ðNcA_U øbU

j %c€l'k'. " C qkmp d d d d d d b v p © x = o % e \ c
î m { Q { { = Z | \ { . N } ð q k m f A _ Û M _ { = b } ? B o |
f } ^ ö Õ i = c € T b ç p © x p { | ã ð N c @ Ç p { T f \ c
p { d z â . p { d z â ð k A î N k % Q } n d { = ç p d N Á o | Q |
l © Q u } c d } n p f A _ Û m f z = _ ñ z N % p { { E @ b |
ø z p k @ ð Õ m f } b % d © ð = \ p d Q p } \ { d | J _ | @ _ ð
D a n m f } ð Õ H z | Õ \ © c } Û ð = T z = b } ß m } @ _ ð Q }
p { | m p { ' N f » = b % T { E " @ = Z © ø q b € Q } ø p k € T k { .
_ k } ß _ { P | = \ N { Û \ { p b € Z d } Õ ø d N { = \ } @ _ ð
m } W | Û d Q _ ð N T f e t \ { . P | = \ N { Û \ { p { | Û € A
m } W | Û ð Õ _ d { N % \ { N Á ç E _ z z â T f p { ' N f » = b k { .

- B o | p { _ ã Û c ß í \ N c ø z p { z _ Û = ø p k € T k {
ø z ç d \ { . p { © n p { = Û } ð Õ D z b k = ç @ _ ð Õ p z p k \ Q }
T f \ { .

z k ó % N z p d Q p { b p { © Z b } d € _ z b | Q c N € b z \ € b c
ø z ç d \ { \ c v l { | ð Õ b { } z m k D a .

Q W | m % z ^ = T k { = ç ø z ç d { | E m Q € T k { f } = \ { Û \ } .
b } p % - p } w á = b m N Q m \ } m f] \ % b m d ø T f \ {
ø z p k
p { ù p { d { n p ç E u } p { Q } d } n T k m k .
b p { ñ z z Õ p { E N { m e = T k { .
ø z ç d \ { k N f } m p q Û = % Û z m ð D î = T k { .

ø q ß N m Û ð e ö ç ø z ç d \ { c B = Z ð p { ^ p { l { = Q }
T k { Û p { ð A W | e = T k { ø z p k @ o | Q | T f \ { d { .
ø ö i D f m k @ b { ð _ p % d { u } ß Q { € B ç A = b c ø z ç d \ { N c
B p T k c ø z p { v p { N c m p f = ç k N { ö Õ p { = b { N € Z .

HN{ApQ} Abm^a Q\z_{d}U_{d}

Lm^{3/4} l {a}E{N}m{Q} øZ çD\{p{c}Ux Ô p{ind}{
u}Bø"NCzp{m=ç pwa\}. @z\{øZ p{Üb^{3/4}
ø|z=Q} @d}Ô\ø| - " C øZ çD\{d}N{T}o|
Êl {p²d{kN\}. B_ø^{3/4}zp{d{Q} d}N{E
NéQçcdp}\{B=N\N\ - l {p{d}T}m{U\}. @_ø
øzl {= T} ød}" @=Z[©] l {p{d}T}m{U\N\{
TF}Ô\ø|.

- çdÔ_d{ç^{3/4}d{p{p}p}={Q}n" d{N{EN{d}Ô\{
l {p{d}\. A N}n=ø^{3/4}BzÔZ;f}=\{m}í z«m{B\{
KN\{p{p}p{ç p{b{m}øZ p{ð ðm}N{E{T}\. øk^abç
z«z{N{=Z. _zÔ øZ k{N{N{Cz{p{ç o{N{=\} f^{1/2} " =bç
@_ø z{ç^{3/4}
J_{A m}í k}m{øZ k{N{m}n". zî Ü{\}

@ðÔ m^af}n^a øZ p{QdN{Hpr{ø z«ë=çd} _zÔ
o{ç. J_{d{N{Q} øZ p{d{z«ë{ç gn= B=N} HN{Ap{
N{b}! _d{k{p{z{p{ðm}b{N{N{ç}\{^{3/4}b}p².

l {p{d}{i;p}b}ðN{ç{m}E=T\{d}m}l {^{\. @_d}
m}^N{N\{m{z=e}\ - " d}N{m}í ð N{çt @p{N}qç
NéQ@_øÔ øZ k{N\{Q} T{ç}" dø.
Ap² m}í ^{3/4}T{ç=bc l {p{d}\{Q{m}ç. @_d{N{ç}_{
_ZzZ|l " =ç p{m}Ô\{b l {dÔ @_øÔ eöe=T\{.

d{ç{zAmç N^am{Ed}Ô\{ l {p{d}\.
HQ}bQ} T^aç C{z\ç{T\{m}í - " z=Q{ç^{3/4}øt

p{ }Ap}, 'I' # [€Q{ }Q} \ Ø. p}b€0¼L \ P¼
p²·D{N{d}Ô zm{pbhN{= \} ñ p²w³a ö=Q€ N{ZD}.
Ao³ç=T{N³' @ð ±v T{Am€T{ \ ØÔ.

m}^ð T{€t, " p{ } d{p{ \ ¾A €½ d{ } T{ } = N{ } { ' À }. ñ
p{ } p{ \ ¾A }, ñ N{ } A \ } B_ð Q{ } {ZD { = b{ } @ð
Q{ } T{ }. @ = b{ } N{ } K{ } ÕN { = b } p².

p}b€0¼@ðÔ p{ } n p}w{ñ z{d}l { } z=Q } V1 " = T{ } {
l { } p{ } d{ } \ { }. m}í ð p{ } p{ } i T{ } \ { }.
_d{ } cdÔ T{ } Ô l { } p{ } d{ } \ N{ } çEøp } z = T{ } \ { } m}í .
@m} VÚ = N{ } \ { } BT{ } \ { }.

p{ } N}n = p{ } çE = b{ } q{ } b{ } _ { } p{ } N{ } \ { } Q{ } ç = b{ }
m} Vcm{ } = €BN{ } çd{ } l { } p{ } d{ } \ { } bQßVl { } ðNç
p{ } w{ } \ { }. m}í n = b{ } m{ } V1 " = ç p{ } ü k³Q } D³m } VÚ =
T{ } d} Ô \ { }. Bo | N}n = Q{ } { } D½ = b{ }

J_ @_ð _ } Q} m{ } z{ } z{ } U{ } ¾KN{ } { - ũm} p{ } ø{ } q{ } \ { } -
l { } p{ } d{ } \ { } l { } Q{ } p{ } i { } ðÔ p{ } b{ } k³Q{ } | n z{ } \ { } N} p{ } z =
k{ } € T{ } f{ } ½ \ { }. Ho | Qd } @_ðÔ
N{ } z{ } N³p } n{ } d{ } N{ } d} Ô \ { }. l { } p{ } d{ } \ { } k{ } p{ } i { } ðNç
b{ } m{ } Q } D = \ Z | ðNçN } m{ } ^ = m} Vu } ðÔ N{ } Q€ T{ } @_ð
k³Vd{ } p{ } ð k } ø = T{ } \ { }. A @W | d } ðÔ _¼ Q€ T{ } Z | ðNç
W | d } Q€ N{ } p² = b{ } ¥ @m{ } b{ } Q } b{ } ¼m{ } N{ } ¥ Jd { } @nm{ } q } N{ }
(p{ } w{ } DçE = _ { } N{ } m{ } Z) p{ } = b{ } Q } l { } p{ } d{ } \ { } ç
p{ } z } p } \ N{ } N{ } ðÔm³ nf } Z{ } p{ } m{ } z } Q } z = e \ { }. A N{ } m{ }
m{ } çNçAd { } b{ } ç A N{ } m{ } B{ } dÔ p } i } eöe = T{ } p{ } d} Ô \ { }
l { } p{ } d{ } \ { }. @o | @_ðÔ N{ } z{ } N{ } d} Ô \ { } m} p{ } ø{ } q{ } \ { }.
" ü e b{ } ñ b } çd { } ðc{ } KNZ ; ñ N{ } K = ZmQ } T{ } f } n{ } â = b{ }

D=bç d}_¼mþ{U" ð N¾m}L QO.

Kz|ÖN{ð pwa\{l {p{d}\{- Ûm{Q}ðNç

@_ðNcm{Qd}a{f;Tª e=T{m}p{ø ü}\{- "Bb|A
ðcç @=Z©.

@=_ 1 l {p{d}\Nç d{Q}ç @=_ } Q{D}N¼çÆ=bç
p²Zd{N¼{NÁ m}VÜ= @zÖQçT{ç}.

øz{n=Q}, øqb{Q} o¾d{m}Vñ_{nðÖZØ j ¾çT{ç}.

(T)o| o¾d{C m}Vñ_{öÖ N¼ðÖZÖ C p}Üz= çp{¾

@d{i=c{Q} BT}Ad{, B=Zm{DdÖ p}wä N¾z=.)

øz k{p}{N¼o¾qçì ø_ç Q{ç}\.

- @ð l {p{d}T}m{Ün Q{mçç øp{m}T{ç} p{ü øz p{ç

.....

pç=_p{ç}z=.

_¾Zn" ømQ{ a t d{ ÷. f»b{m}ä b{z=Q} e m Q d{ ÷.

L Db}Üd{ø¾Tz p{cÜj }Zo¾d{ç{D}d}Ö\{

øz çD}\.

zNÁd{L}p{m{N¼nd}. A zNÁd{L}{nç_¾. @NÁ\¾

f}nm}î î dÖ. b}ð ü b¾çðÖ f}z. p{d¾z m{p²d{

mª z=.

Aq{mÜ, Ad{bç e d p{z N{d}Öl " øz çD}\ø¾

z=_}dç o{ d{N{ @bçz z{u}bç @d{N{d}Ö\.

z=_¾z=_¾B=Z{Nç z Nwä\{. @D|m{p{b}Q}

e=T{ç{d}Öm}p²ð - Q¾b}b{ð.

N}n= Q{ç{D}z bç Q¾b}b{Nç {p{d¾d} ç= J=bç

o³N}b}Ø_ u;=bñU= Ap^z u»=_p^z=bç

øË·Ûk}pç pñ _dN{ Q1/2õ z=zbñ· NôQd} øË·çD\{
p{|Ûç l {a}ÛN}mçQ}d{u}bø·Nç«np{|nn· NË
@mõD d}õ\{. J_ kQpç _{\CN³z= _d{çÛCNËd{
p{|nöõ Q³b}bñ pç= b{Q} _d{çmçç j }ø ñwão³ñ\{
T^az·N{ð Adçbçç A _ñ}B_ {p{pä i·Ëo³4eËD1/2bç

Tñ·D³øË·Q}aóõ _ñ·AN{=Z© II @p{|m}D³@_d{
Hpñõ Ho| pñçT}\³øpñçç T^a« zmpñ{D^a N}n=
Q\{ç_ ³4bç

Ap² p{dç·â o³õ k}p}n· z^aTd{F}l {=Q} p}wãNç
@ñp{A {d}õl ·. zmçk}z^}D³ T{ç}Ám}D³Ap²ð
AZn· zËD d}õm{ç p}wãä.

Vd{Û=_ñ}n j }=çpÛ= Ap²o³4omçz = mç_ ³4bç _dç³/₄
_d{çp{|Ë|\{N{=Z³4bç

N{S}p{|mço³4m}z÷o| øq{ç}öõ _ñ·AN{ð @z^al {
z\{ ³4bç Ûz=Qpç}d{Tñ·n· " d{çp{ç
N{S}p{|mN}n=o³4z_ Ûk}p{p²pçZ|pç" @dç=_³/₄
z [ç]D{Q} z«mçVd{ÛW}dç NôQçb}p²Nç
øË·øl ©Qç B=N} b{mçmp²=bç

m³/₄ | zbl {=Q} z«np{|öNñ· mç=ç Q\{Nçp²yä
K=ZmQ} u}bø·Nçzp{mõD1/2bç Al {d{Nãóõ
bçÛQ}dç T^a1/2bç ðmç_ñç u}bø·d{ñ·AN{=Z©
z«ëD^a Q\{ç_ ³4bç

@bç_ } _dNç_õl {ð L mNp²d{çz·â

J_!@Z"0=ç b{An}mçp{=b{p}©d{ @Z.d\{!} b}zmc
@NA\{-

HNA\{T{p}td} -

p²b\{ç} í û{ç} z\{ç}d{z|û{ñ}. p{ç}={z}p{ç}={ç} Q{ç}Q{ç}ç
î d{ç} Hp{ç}N{ç}. p{ç}tmd{CQ{ç}³/₄d={ç}1/₂ " p{ç}d{ç}
zçÆ_³/₄ä. Q{ç}öN{ç}m{ç} {d{ç} p{ç}d{ç}z{n} í Ë. p{ç}N{ç}b²
z\{d{ç} @p{ç} {p}n. p{ç}Z{ç}N³/₄z= f{ç}1/₄}\{ç} {d{ç} p{ç}Q{ç}n.
p{ç}N{ç}Án zQ{ç}Q{ç}N{ç}w{ç}äp{ç}={ç}z= N{ç}z!

"BNA\{p{ç}³/₄Dd}Ô\{ç}. p{ç}\{ç} p{ç}ðç p{ç}|û{ç} N{ç}b{ç}" @d{ç}
@d{ç}p{ç}|d{ç} z{ç}p{ç}={ç}b{ç}b{ç}zmc{ç}d{ç}z{o}³/₄ A @d{ç}p{ç}|d{ç}
ðV= T{ç}²a Hb{ç}m{ç}Q{ç} A T{ç}Ë ü{ç}b{ç}N{ç}ðe=T{ç}N{ç}ç-
N{ç}kW|d{ç}p{ç}d{ç}|û{ç}z{ç}û{ç}m{ç}x{ç}z\{ç}!

p{ç}ðç qp{ç}ðÔ T{ç}÷T{ç}nð Q{ç}³/₄Q{ç} eË{ç}N{ç}d{ç}Ô\{ç}.

d{ç}Z{ç}q{ç}m{ç}ðÔ Hû{ç}Z{ç}N{ç}i ý_³/₄N{ç}z{ç}Û{ç}N{ç}d{ç}Ô\{ç}.

î m{ç}Q{ç}d{ç}|d{ç}Q{ç}ç|ç{o} D=b{ç}çp{ç}\çp{ç}O=.

N{ç}b{ç}m{ç}ç _{ç}Ë{ç}|Z{ç}Q{ç}ç{n}, ü{ç}u{ç}n.

V=b{ç}²Q{ç} p{ç}|ç\{ç} {d{ç}Q{ç}l + p{ç}ðççp{ç}Q{ç}n.

p{ç}|ç\{ç} {d{ç}Q{ç} f»Ë.

T{ç}²i " _ç.

p{ç}çAdQ{ç}={ç}z{o}³/₄N{ç}¹/₄T{ç}² í Ë.

ANçü{ç}b{ç}Dd}Ô\{ç}. î=\çi z{ç}N{ç}m{ç}o{ç}ð{ç} eq}T{ç}öÔ

i=\ç{ç} a _{ç}n î\ç\{ç}d{ç}Ô\{ç}!

b{ç}zmc{ç} T{ç}²ç\ç. d{ç}³/₄m{ç}²m{ç}çb{ç}ç

HQ{ç}m{ç}²N{ç}ç\ç{ç} p{ç}={ç}b{ç}!

b{ç}zmc{ç}N{ç}²\ç\ç{ç}N{ç}çAp{ç}p{ç}\ç N{ç}b{ç}. q{ç}²m{ç}\ç. l {ç}ö{ç}³/₄

Amc\ndp}\. inp_{\}

Bom l {b}dNcbQf. e\Q{b}D^{3/4} N{EzE₋^{3/4}
N^{1/4}_{tze|u}Q#Tf.

Bo| N}bð b}zmð N^{1/2}E|T{zZ|ðNcu}cd{ N^{3/4}z= T{Z[©]
T{t\{p}\}. Bb{tzi| {p}ð p}Ï|_ð0 z\#
zmQD} ^{3/4} \{b}zmc m}x_{\}eq}T{ö0 N{f\}
zE[©]N^{3/4}p}ð. @=b{f^a N{t p²Zi \{zE[©]N{d}0m\ð0.

"dð0=_ N{EzE|d{ðd}0 çÛp{t{p}m=Z| T{t\}"
@=Z[©] L {eQ{₋^{3/4}@_ð T{f{n[°] N{E[©]N{ðñ, dD{m\ zE[©]
Q{=\Qñ _p{Ûð eq}T{ö0 z=_{p}\}

b}zmc{m\=Q} ûz Ûm}x_{\} ^{3/4}@d}0\{ - "d}N{T}p{
Q{mç k| {= o{f}. ðW|ðNúòT{p{Dco|Q} d}
q{m}ð0 p{m¹N{cAN{ i m{E|ðNcBpßZ= d}N{
z=₋^{3/4}z=Q} D=b{CN^a\{ J_{|d}N^{3/4}p{f{p{f=bç m^{3/4} | C
b{p^{3/4}Dd0 N{m\=Q{\Ncf^{1/2} " @N{ \{øz{kVdñ f}\ç
p{d}d}. Bp{w{N^a\{ @o|Q{T{t @p{N}q}ð0 d}N{pß.
îmQ^{1/2}çEñN}üm}dA0_}d}" @ð.

p{p{N{d{p}\{m}x_{\}. "ñ b^{1/4}Qb}zmc{p}z= T{t t ñ
p{\Zn[°] d{p{Ûp{f=Z|p}? KN{m}cl "N{f[°]"=ç f₂_{|d{p}ß
p{p{ä îmQ{m}pð d}N{_²b{d{N{f=Z[°]d}0p}? C p{p{p²"{mç
p{\Zn[°] T}p{f " @ð N^{1/2}E{f}m\.

"d}m}l {\^}!" @=Z[©] T{p{h[°] p{çz[°]N{d}0\{b}zmc
Hd^{3/4}0 oc}n[°]Q} T{e0 T{t\}. çp{m{NcR}|m{Eî E
T{t\{ - "Hpðp{p C oqß= z_{f=b^{3/4} Hpðo^{3/4}
D=Z[°]=b^{3/4} çp{m{Nc{p{p{ä Hpðo^{3/4}÷d{p²f₂_{f=b^{3/4}A

øz̄ p̄N̄p̄{m̄¼b̄} d̄p̄m̄¼} z̄p̄{d̄≠Q} k̄}ø=çd̄{t̄}t̄}d̄{
f̄½}d̄{, î m̄Q̄m̄}N̄{=Z." @ð.

@z̄ÕZ̄N̄çd̄p̄{UN̄≠ N̄Q̄≠b̄m̄}x̄z̄\N̄ç b̄}z̄m̄ð K̄b̄Ō{.

Q̄{\N̄çz̄m̄{Q̄D̄{N̄w̄ä\{ b̄}z̄m̄ç ū}B̄ø·N̄ç

ū}S̄=Q̄d̄p̄{ū}Ám̄≠ T̄{t̄}\{. H̄z̄ÕZ̄N̄ç}Ô N̄{Ā\} D̄ÛN̄{¼
D̄½Q̄Ȳ}n̄ f̄}\{. p̄²Z̄d̄{B̄çÆd̄{p̄{Z̄ ÊN̄}m̄≠
m̄}x̄z̄\c̄b̄m̄N̄ç m̄Q̄{T̄Ē}\{. "d̄}ō¼Īù" p̄{m̄{Ō ō{
j̄}Q} T̄{z̄·N̄¼ B̄=b̄}N̄{ĪI @p̄{ {p̄}n̄ Ho| p̄{d̄}Ôl ©
l̄ z̄{Ō\© @o|Q̄{D̄d̄}Ôl . B̄=N̄{ {D̄Q} k̄¼T̄? "Û"
@ð p̄{d̄z̄^aÖD̄Q} T̄{ēŌ\{p̄}\ç¼

Û̄z̄ Û̄m̄}x̄z̄\N̄{Ā\} N̄w̄ä=Z̄ ñw̄¼T̄}Æl . b̄}z̄m̄ç
z̄_Û̄b̄x̄N̄ç

N̄¼\ó| b̄}z̄m̄çT̄{Z̄© Êb̄x̄ç}n̄ T̄{t̄}\{p̄}\{. @_ð
N̄}w̄ä ù̄b̄{z̄{̄}\{. @_ð f̄}b̄}öÔ _d̄{h̄ ù̄b̄{
ēË·N̄{d̄}Ô\{. @o|Z̄p̄}m̄{ p̄{m̄{N̄{t̄}=\{¼m̄ð @_ðÔ
f̄»Q̄&{.

J_Œ d̄ð _ßm̄Q} î d̄p̄{ð p̄}Ë;_¼b̄m̄{T̄{t̄}\{ b̄}z̄m̄ç
m̄}x̄z̄\{K̄z̄{ŌN̄¾ō{b̄}b̄}ðN̄ç _d̄ð N̄{t̄}^f̄ç _d̄{ T̄{t̄}d̄{
f̄}f̄}n̄ _¼Q̄≠T̄p̄{ð b̄}z̄m̄ð p̄{N̄{d̄}Ô\{. _d̄{
z̄«m̄ßV̄d̄Û̄¾ū¼p̄{q̄m̄Û̄ @d̄{Û̄}z̄ Û̄^·Ëð, KN{
R̄|mf̄}z̄= T̄? {Û̄= p̄{B̄o| m̄}x̄z̄Ël {d̄ð, b̄}z̄m̄ç
Am̄¼ øz̄ p̄{N̄çf̄}\d̄{f̄}Z̄ go|ðÔ _d̄{N̄ç}d̄≠ T̄{t̄} l̄ |
m̄}x̄z̄V̄d̄Û̄ f̄½ {=b̄ð Û̄}c̄{ {z̄{̄}\{.

b̄}z̄m̄ç@=b̄{N̄{ Īp̄{Û̄≠ z̄ p̄{O_ {T̄{e= T̄{t̄}\{. "Bo|Z̄;
q̄{m̄}n̄ Hd̄¾Ô p̄{d̄}l̄ , f̄½}l̄ . z̄ m̄çd̄}p̄{ z̄=N̄{d̄≠

HZ|U\¼Q}ð I|tbcN}b}. NqN{KNA U{Z;N}n= go|ðU
N^ä \{p{mNkNCBpßd}' @ð p^z=\N|t \{b}zmc

m}xZ \{N}w}äpW}ä zN} \{. _d{Q{m{p|Q}m}
@l ©Q{ÚnNCHp{mN|Tf»Öbð q}ú=çd} N^ä \{ pZp{
Q{m{p|nxU^ l ©Q≠b \{Ho| @=b{mN|QY}
T{p{|\N}ðÖ Ûm≠Qd}a{\Q{\Q³z}m≠ HNA p{mY
j³c≠T} \¼Q{D|T| \{. B=N} H=_¼p{≠bçpZp{kN{n
T|d{o³N|_ }ðd{zd{öÖ I N{p|eZ \{. çp{mNcb}zmc
Am¼ f} \d{çZçp{mcf}Z go|ððd} Bp{Üð
p{N{d}Ö \{.

N¼_ {p²D{N} \{b}zmc Ûz Ûm}xZ \Q} H=b{N{
p{mN¼TzÖp{d}Ö \} m}xZ Ì; Bo| TzÖ \{p} \{-

"z«mßVdÜo¼d{ T¼wbQ{≠o¼D=\p}Ì; zb}Ön"Q{
øb{ñ^a d{mEd}. Q{mß=_¼ø"Qö{ðb}ß=z op{m
oNAT? {UN{=\} @pp{|\ðE=\p}Ì; L u}mcl {E=
T|p{ð \{× z=f}l "=TZ|ðNç{a{mNçwäd}.
TzÖN^ä \ð zd{ññÖ T| \{× f¼Q|d}. b}ðÖ B=N}
e=T{b}p{ð L p}Úf}mNç{N|T|Ed}. N¼d}Öwä l {N{
B=Z|Nç{mQp{w}änðe=ç=bç \{× pZ^an" T? {UZ|ðNç
A p}Úf}mcbQ{mNçwäd}.

BN{@z|Ö \{T^ä \}ö d} ç=b{ñ"! pX≠ N{Áp²bð
f¼Z|\Q}. oNÁ _zÖl "=bð m≠Nö|td}. @_çNç
dççÆ=bç@=_N≠Z³HN{Ápð @k}=\}n" p|td}. HðÖ
mN{n"Q} ùoÄ_{=b¼@ðÖ mN{n"Q} N≠{o|\@_ðçÆd{
\{×ð zbú}m{ oNÁ eZ:N{ð i z"N{d}Öd}.

J_d}NzU\{_öI {=bçL b¼Q{Bbç_}

Qp{öE d}Ö\ø.

d{N¼D{Tz,Ön N¼ p}Zð tç T? {ÜZ=, xÀmç

T? =T{N{ö u}Ödç T? {ÜZ=, _p{nf}N{n, pNÄn

önp{T? {ÜZ=, zÛ}nNçpÿä Hpr{p{r{HZ pç

p{d}Öm¼p}N¼ T? {ÜZ= - @ñÖ Qp{ö=T? {p}\{.

@o| d{z,Ö\{I ö\}mç ¾Nç t p¼bç

_ñ z{N{d}Ö\}. dp{UNçQ} _ç pç|_¾KçÆT{mç}.

_ç{¾Z; b¼QçÖ pç=b{Q}d{z=e b}¾N}ç

p? =T? {.

p? = il {ö. b}¾@ñm}ö p{p{ÜöÖ z \}p{çQ}

oç\{p}\{. "zbç\çzbç\{ö EbçQ¼Zç\{.

HNA\N¾_ zNç=\} öÜpç{ö¾@=bçç dçT?. TNAQ}

p{p{ÜöÖ b}mç çÖ=ç L p}Q{bçNç z{N{f¼ \}.

@bç}ZZ|öNçp? = b}¾Bo| bç - @o| l |oç\{

p}\{.

@=_ j }^}n^a, m}wçä pç|ü"b{N{mçdç} ç.

b¼Qç¼çÆT{Zç Npç{UN{d}Ömç. inpç_ {öÖ,

Al {c}n dÖ p}wä ö pçö ø Qöç{p}wä ö b¼mçdç_ {

b¾T{N{d}Ömç. Q{ñ h^a \ bç =ç Q¾çöT{mç. Tz,ÖöÖ

èöÆ, í ZöÖ b{öe Tççmç.

C Q¼ pç¾N¼_ pç=bç çÖ=T{N{ f}mç¼ \ mç.

p}wä_¾çmçQç{d{Nç\}.

J_dç{ö p^"bZ"Ö=è Nçç_{çdçp}\{pç|Üç

dçöbçç. pçZç\çZçN{ö d} bççdççö

E\çç\{.

sz []d{Q} d}N{ p}f; Bb p m N { T f e p d Q E
Q { m / c A = b c p } \ { p } f » m { Q f m c p } \ ¶
A p { Z @ m c T e O d { p } \ c ¾ d } u » p { U p } \ N c
b N A N { = \ } T ¶ } d ø j b m e T ¶ {.
b } = _ ¾ p } \ { d } \ { × î m Q p ß N f ¼ Q } d d { Ô e Ë N { ð
ç _ N { } b ¶ { . B = _ ö ¾ 0 " Q ö d { p } w s ä m } i Ë j Q } ð o ¶ { = Z .
@ N A \ ¶ z m p { d ¶ p } ¶ ;

A b Q P ¾ D d Ô e ö j } Z o ¾ p D e p { m ¾ ò \ } m {
p c A = b e _ ö ¾ p } w ä o ¾ d } j } p p { m b c K N { { d } Ô \ { .
p } \ { d d ¾ Ô N } p x t " Ë o ¾ e Ë N { ð p e z N { f ¼ ¶ \ { .
z m Q C T Ë N e b N c p { ¶ E z m N c @ _ ð N c b } z = p e
d ø Ô N A \ { b e ç ñ w ä N ¾ z = p b { N { A = Z e f ¼ ¶ \ { .
@ = _ ö ¾ d ¶ d } ¶ ^ } n " f ¼ ¶ ¶ . @ _ d { î m Q ¼ ¶ E z m N c
d ¶ o | m } x z " ¶ l { } d { .

T } p { z p { l { = o ¾ d d { Ô N ¼ Ë d { A b ¼ Q { m e z p ¶ d }
p { d z " o ¾ D = \ f ¼ " = b c Q d N { d } N e @ o | Z j m e z p ¶
p c A = b c

B b y d } N a { @ = Z e p { Q e T } \ { m } x z " \ { .

@ = _ } ø d Ô b } z m c E z d { Ô \ I ¶ \ { .

" b ¶ g n = I ø " Z ¾ d } N ¶ " _ z b { ; @ ð Ô Z ñ T e z N { d ¶
p } \ { A d } m } l { ^ " \ ¼ N A \ ¶ @ ð b } z m c @ = Z e = \ Q }
@ _ ø p { Z n " @ _ ø d ¾ Z ¾ D = \ Q } d ¶ ¶ z Ü m } x z " \ c m e z =
p { m e ¼ u } Q e b c

p { p ä u ¼ p { q m Q } , p z p { ç ü Ô n " c m e ç ð ö T ¶ {
H b { m { Q } . b } z m ø D ¼ ¶ e T ¶ e « e = T ¶ { .

- Boi p{ij|nb}zmcptd} = _t øz c d \ \ NCI p e O \ i U
p{ü øz p k
T e O, " d } N { T k V d h k } p e H = _ { o n p = b 3/4
B z | O \ { _ o t = b c N b } ! N d { N { n N e _ { m { H z | O \ e
U } o \ e i = c } n " f } \ { d O = b { N { d { p | B A d e b e T } ö .
A p 2 e « m b V d U o 3/4 k e b . A p 2 ö U m e Q } ö N c i z N w s ä .
p { n " V m { Q { _ { = b c " @ ö A d { T e \ }

@ o | Q | d ö U m e Q e p w ä \ { ø z c d \ { Q 3/4 b } b 3/4
B ö n e U m e Q { \ c z ö O c N c p y ä A l { d O k N c 3/4
e « e = T { n { . U m e Q d } a { \ { e _ U x p { l { \ . @ _ ö
N { q h p { \ Q { . Q 3/4 b } b ö Q p { d = T { \ . A p 2 ö _ d {
@ = _ { z | m e o 3/4 N c i z N { d A p 2 o | Z i p { | l { | z = b n ö
z - e = c ø z c d \ \ c 3/4 e = e \ }

i m } - ø z c d \ \ { B = Z i N C T i n c z h N c m c T e a d - b } e 3/4
Q 3/4 b } b N ö O = T ö b { !
U m e Q d } a { \ { _ d { N { p { | d ö @ e x m e T { ö @ = b n c 3/4 d e
p 2 m e e N { d } ö \ { ø z c d \ \ .
@ _ ö A p { a N c k Q p e _ \ { N e \ } k l { e N } \ } !
e _ U x p 2 - " p { z ö _ d e p e n N { p { i ö _ t
_ e ö d e = b c n N e _ { m { e b h = Q } n B = e 3/4 d | D = b c p y ä
T e z N 3/4 p { = b { " @ ö e = e \ { ö ö .
p y ä T e t z m N c ö V = Q } d { @ _ ö B = e 3/4 d | D = b } p 2 .

m e Q d } a { \ { e h d { Q Z | ö N c i z U m { U { : - ö z m e b i
f } m b _ { ö ö ø z c d \ \ c B = Z i N c e = e \ } . p } w s ä p y ä @ _ e 3/4
Q 3/4 b } b ö p } z ø z l { | n " p { T e Z i T { n { . ø z c d \ \ }

emp{d}b{k}m{ } \^{}@=b{N} @=Q{M}f{I} \}

U öi D{m}{o}{3}{4}- øZ cD{\ CB=Z}{4}- zNñ b{p}{h}
zp{x}{o}{3}{4}-

p{ü}pkp{f}Q} VmQ{f}b{c}øp}z =.

z=_{Z} \^{}; Ad{f}b{f}Q} Q{3}{b}b{f} zv_{\^{}VQ}öÖ
f}öZ{d}Ö \} d}m}l {^{} \^{}!

@d{i} = c{f} 1. N{1}{Ö}Ö zeb}Uñ.

BN{A} \{m}l {n} Z_{UN}{d}öN{c} z=k}z^{ }T}_{m}ÜÖN{c}
N{1}{Ö}Ö Db}z m^{ }öZ{d}Ö.

1. (Ap{f}Np}{n}Üb{ø}nx^{ }_{f}{4}KNZ; m}l {n} T{f}d{
f}{m}ñ. ø Qö{d}{Np}{f} @_{d} {ü}p{c}D{f}öÖ, p}w{ä
k}m{Ü}öÖ, ød}l {N}{f}{j}Z{i} = T{\}. p{z}NZq{ß}m{f}{i}; Al {d}{
Al {c}{÷}Ö, p}z d}{÷}Ö p}{f}Ü{p}{f}Z{i}D} \}. çp{f}m{c}
nx{Ü}b{f}ö N{f} \{ñ} T{N}{A} \}. Bb{c}Al {d}{üm}{f}Z{p}{k}N{c}
öb{f}d{f} N}{p}{4}{f}E J_{Q}ñ{f} Ü=_{\}Q{f}m{f}ç Al {d}{
m}td{C zeb}Ü= z=z-Á_{zp}{f}z k{f}l {z}p{d} Q{1}{z}Ö
k}p{N}{f}ö T{f}eZ{=}b}

OdZ_{+z}l ©ÖüxÜ m{ü}_{ó} | d{3}{4}dÜ

e= \M{f}_{=}Q{ö}_{=} \V{p}{f}n

c{f}_{N}{o}{|}l {f}ñ{O}=\ç {zø} {p}m{f} z

T{f}ñ{f} = î N{f}Ü{p}{f}D{f}ñ{f}p{f}ñ{f}n

Bd{Q}{ü} BZ; {m}{X} = N{f}ñ{f} o{3}{N}{f}b{ß}

3. $(\emptyset \dot{Z} \cdot \zeta \underline{D} \setminus \{ \text{CB} = \mathbb{Z}^3 @ \tilde{m} \} \hat{U} \{ \cdot d \} N^a \setminus \} @ \hat{i} a \{ n N_c$
 $k^3/d \} n \cdot e \setminus \{ \{ = Z | m \} T \hat{e} \hat{O} C \text{zb} \hat{U} = N^a \setminus \{$
 $\hat{E} P | \hat{U} \cdot \text{T} \hat{N} \hat{A} \{ \hat{d} \hat{o} \cdot \frac{3}{4} u \} Q \hat{f} \frac{1}{2} \{ \text{zb} \hat{U} =$

A $\hat{\delta} \hat{S} \} \hat{\delta} c Q \hat{z} \{ \text{ep} \{ d \} \{ m \} \{ \} \hat{o} = \zeta d d + \hat{p} \hat{O} \} \{ \cdot H =$
 $\underline{\{ d \} Q \hat{f} \hat{B} \hat{q} \} \{ \} d \{ \text{z} \wedge \hat{U} \hat{N} \hat{a} \hat{n} = b \hat{p} \hat{U} \hat{E} i = c \} d \{ \text{z} =$
 $c \} d \zeta \} \hat{b} d \hat{p} \{ \cdot \} d \} \hat{D} \hat{q} \} N \{ i \text{z} \hat{S} \} d \} \hat{D} \hat{U} \hat{Z} \} d \} \hat{D} \hat{U} \hat{Z} \ll$
 $f \frac{1}{2} d \} \hat{D} \frac{1}{2} \hat{b} \hat{d} \{ u \} \hat{Z} \hat{p} \zeta T \{ N \zeta \text{z} \} \{ \} k^3 \hat{N} \hat{p} \hat{U} \} \{ d + p \} \{ Z n \cdot d +$

4. $(H = \setminus \} N \} n = o^3 \frac{4}{4} \text{z} Q \hat{v} \hat{S} \hat{a} f \gg \setminus \hat{p} \{ \} \{ \hat{U} \} \{ \hat{\delta} T \hat{e} \hat{O} \hat{Z} | \hat{\delta} N_c$
 $C \text{zb} \hat{U} = o^3 \frac{4}{4} p \} \setminus d \{ k \} p \zeta \hat{U} \zeta m \zeta p \{ \} \{ =$

$\text{z} \setminus \hat{p} \{ m \hat{p} \hat{Z} \cdot d \} \{ \hat{U} \setminus \{ N \{ \hat{U} \} \hat{q} \hat{d} \{ p^2 \} \hat{N} \{ N^a Z \text{e} b \hat{o}^2$
 $i \setminus \hat{\delta} N \{ d \hat{e} \setminus \{ d \zeta \hat{A} n \hat{p} \{ \hat{E} \hat{Q} \hat{p} \{ \hat{n} d + m \hat{o} \} \} \{ \hat{E} \hat{p} \} \{ Z \hat{n} d +$
 $p \{ \setminus \hat{t} \setminus \{ \text{e} T \{ \hat{A} \hat{Q} \} = Z \cdot m \hat{a} \hat{p} \{ \hat{\delta} \hat{O} n \cdot \text{z} d + \text{z} \} \{ d \zeta i \cdot$
 $u \} Q \hat{o} \cdot d +$

$V \setminus d \{ p \zeta = T \hat{d} \} Q \{ b \hat{p} \zeta = i \cdot n \cdot b \hat{p} \{ n \} \hat{U} d \hat{D} \hat{m} d +$

$(\text{z} \setminus \hat{p} \{ Z \hat{i} d \zeta = T \frac{1}{2} \hat{D} \hat{d} \hat{O} \hat{p} \{ Q \} \hat{o} \hat{i} d \hat{o} N \{ z^a m \{ \hat{U} \setminus \hat{m} \hat{a} \zeta$
 $\text{z} \hat{Q} \hat{o} \hat{d} \{ f \} p \{ n N_c q^3 s \gg \zeta \hat{A} \hat{p} \} \{ Z \hat{i} p \} \{ Z \hat{n} c$
 $\hat{E} \setminus \hat{f} \frac{1}{2} \{ d \hat{Q} \} \hat{i} \cdot @ \text{z} \hat{O} \setminus \{ A m \hat{a} \hat{u} \} m \hat{a} \hat{m} \hat{a} \} \hat{\delta} \hat{O} \hat{A} \text{e} b Q \zeta$
 $p \{ \hat{p} \hat{a} \hat{p} \} Z \hat{\delta} \hat{p} \{ \setminus \hat{p} \hat{D} \hat{d} \hat{O} \setminus \{ \cdot B = b \{ p \hat{D} \hat{z}^a m \{ \hat{U} \setminus \hat{m} \hat{a} \zeta$
 $T \} n \} \hat{e} Q \} d \{ \hat{D} \frac{1}{2} \hat{b} \zeta @ = b \{ p \hat{D} \text{z} Q \hat{v} \hat{S} \hat{a}$
 $f \gg \setminus \hat{p} \hat{D} \hat{E} \hat{d} \hat{Q} \} \hat{i} \cdot - B \hat{N} \hat{A} \setminus \{ T \} o \{ N \hat{o} \hat{z} p \{ \} \{ \hat{o} \hat{O}$
 $K N \hat{T} \frac{3}{4} Z T \hat{m} \hat{E} \setminus \{ m \} l \{ n \cdot \cdot)$

5. $(A p \{ \hat{N} \hat{p} \} \{ n \hat{U} b \hat{o}^3 \frac{4}{4} \text{z} = k \} \text{z} \wedge n \cdot Q \hat{p} \{ \hat{U} \hat{S} \hat{d} \{ \text{zb} \} \hat{D} \frac{3}{4}$
 $\hat{o} = \hat{Q} \} D = Z l \hat{i} \cdot B \text{z} \hat{O} \setminus \{ @ o \} Z p^3 \frac{4}{4} m^2 \setminus \{ \text{zb} \} \hat{U} n \cdot$

T¹eud.)

Aiaup{ Q10, xmc_d{
T13Q1 d1nl {, m_{p1 }d obbb+
p}_{ei} T^c "o|_in
p{ - _mp} l {\Q? p{Zo|\{=" \d{T{d+

(BN\{DdObcd p}NUp Jd} @N T^N^Z|dNc
N^T^ zp{ \{= d{=bc Bb@dBl \{= - _mp}l ,
D\{Q{(TzOZ|dNcz=bz = H=b{N?}, o|_in p{
(zm}l p}w{p{?}, p{Zo|\{\=\{, @d{T{d}

6. (Bø f)=\Um}i _dð pZp\Q} T1 {UZ|dNpçAd{
l {p{d{\c3/4@=Z^d p{Zn.)

z=Q1 l ^ l ©l "? Bz^p{\{[Q^}p!
_Dð ðim{ p}b{ei} _mp^ ñN?
L\c0l {\ zZ;p^m3/4@d{Q{
ö=Qp{d{NEN\{Q{p^m{Qcd1A}p!

(T)o| Qp{UD{ d{zb}n^d}0l \=b{o3/4 J_p}Zi_3/4A
m}i N{[zBm}ð0 H=_3/4Q1z0Q} T^eD^d}0\{Nø.
b0 @dBl \{= - Ll , z=Q1 l ^ (z=Q{0^Z3/4
_ñ^D1/2b} ñN?), Bz^p{\{(çd0), [Q^}p{
(f»ZQ{m{ o|Zi;p}\0 - "T^Z|dNci "\{\0"
@d0Z), m^{\, p{©\{f}b}n^ z0Zp!; ö=Qp{d{
NEN{ D\{Qp{ (Em{N3/4p{), HmQç(Bbç_ñ^z^N{ð),
d{\p{ (p{Z|\).)

7. (Ap{Np}nUb{Nd} p{=b} m}l {n" z=z-A_ t0¼
Hd³0 N}p}Ún" m}q{. Ap{Np}nUb{Nd}N{ \}
Nðe=Th z=z-Á_ t Q}ð T}o| p}Úp{imNp²d{ ñ" Q}ð
m}tze{ \{ @_ d{ most comfortable Q} D=\Z=. b}ðNc
Db}x m^ C z b{.)

@b} p}Qβi " c{ i v © p{Td{Np}Úm}p{ü p{T{
tâb{ j }>N{ _ }= Q{ } Nð m{ ũz^ Ncøb}Úc{m{
òb{N}Ú p{Q}Hl {= v N{c{ }| ø_ {Úd{b{+Nd{Q}m{
i b{N}Ú {j Qñ" ÖZ_ {pp{d{ b{ }²Úd+dk{ i = _ { }d+

(øz{ çD{ \{ Qðçd{ \{ b{p{N}B{p}w{sä I p{ð
f»Q{ \{ n¼T{ =b{ øi " c{ñ" (b{p{ñ") "@b}"
@d}ÔmZ; Np}Úm}ñ" (e_ m{ñ") "@v ©"
@d}ÔmZ; t{b{ñ" "Aü" @d}ÔmZ; øb}Úc{m{ñ" "Nð
l {Q{ N{ _ } {Q{ J=b{N{b} } @d{ ũz^ Ncøb}Úc{m{Z;
Nd{Q}m{ñ" ò{N{Q} "B_ m{p{ }n p}wä Q{m{ = @^Q{ b{c
N{b} " @d}ÔmZ! @d{Q}p}w{sä b{p{ñ" Qd{N{b{p{k}zo³d{
T{f}Ö{ \{ Nð.)

8. (p{d{Tm{U} {o³4E P|Ú {zb{ = " @ZVð N} =T²
k{ ø " z{ m{ \{ " N{u}ZQ} Dd{ C z b{ = p{ |nb}zmc
N{ð³b{ @_ ðN{Áðe=çd{pZp{x{ p{ñd{)

N} =T{d+ p{Zp{ \{ ñ" ©Vd{VZ| R|Z³N{q}P³z q}
P| =T{ _ +m{ |Z T{m{ +p{m{ _ +m{ { b{ñl { } Ûe_ ³b{ÚT{b³
b{ T{ _ +N{ N{ _ } { _ +U{ñd{öf}Úf}b{c}c{ßd{Üð
zâ =T}m}D{p{ü go³ep{ gn u}Öl { _ +pZ{x}ÚVp{d+

9. (@b|z=bn0=0¼Dd0 ü z Um}xZ' \ Cpnd {p}m/AkndC
u}cÜp}l {bCN}b{!)

p{-_p{DkÜ m²Z|d{ðk{T}nN{dÛ{
m{ëH' ed{f»Z p{=ëp}ð
zHèp{ñ p{W{kD|_N{ { f½²
Hm{z0Z;d½z0 N{p}ð
pÜ {U z Dp{D}k{f}l {Q{Qk{
p{d{b{Eñ f»n Æ p² Qp{ p}ð
N{b{Hð_{Z³Q1 T¼Q0¾f}=\{
m_{ø=T{N{en N{mE=i p}ð

HmN{ _m{p{mCQd{q}OoNA W|m{
Ûep{V=b²i N{zmC e j Z' p}ð
Ûh \Q{j ¼Qñ i a mQ}ö p}ð
T²i _h p}ð @pZ' N{Ei p}ð

10. (u½p{qmÜ Dd0 ò\}m{ð b¼Qñ zE'N{d0z0\{
@=b{0¾Dd0 p}wä Ip{= T{m¾T{e0 C zbÜ= N{ \}
p{TÆZ³bç- p{d{z n zBk}p}÷0, p}wä p{|Z÷0
N{wäNAZ;T{ e=TZ=0¾)

zto{ðnm¾ f}zlo|m} l {ð
b{p}l {c{Ei n m{p{p}m{
e\j}zp{ TZE\pç b{k{e
ZN{ f}m{T{d²Koð+p{T{p}m{
i m{p{\ç NZ|m{zm{ ç=ç ðöÆl =
b²b{p{TÆb{Hb{m{p}m{
p{E=i N¼\{b{m{Ll BbCTd0

zđđ b{ {z'Z en'N}p}m{

Nhø p{p{©N{ðe0=_{ _1/nQ{ \1/NZ;

A\{b}đ T{N{Z\ \d{T{ eb}

_d{p{ d{p{d{p{d{ _2z' N{Q{zöNc

đöe b{eT{Ap}m{d^2 _1/nQ{m{ \}

11. (çp{m{Q}, N{Zm}l {n'' _d{Q{m{ç Tz{ÖN{d{Q C çp{m{z b{U= _3/4p{Q{D}d{.)

Bbčño|Tñ ñnTñN{z'k{b{p{m}k}x{N3/4

^ b{Q{çT{+k{V ùm{U c{m{U V l {zd}ô ùm{Z-p}b{U ö

_ {Übç {k{ßm{N{Zm}l {p{ç W l d{U }ôbç}p{N{p{

nÜb{d}q}ßz{p{ z{p{ç=i nm{ ç -b{U= }đ{z b{U=i ''nd+

@d{i =cç 2. l {p{d{\{ T{e0d{m}Vñ_{n'' N{đ{ô.

øz'N3AN{=\} êVöô m{ç{T}ö m}í . m}í êVn p{ñ'' N3m{ç {êVn'' m}í p{ñ'' N3m{ç}m{. êVn=_} N3m{ç{ N3m{Áđ zmp{q{ßm{\{i m{d}\}

Hp{d{d} p{ç=b{ eb{p}i;T{ç A _n}ß_{Q{D} p{\{ p^2'b{ç3/4Dd{Q _d{\ N{Áp{N{đ _ñ''AN3A{- Dd{Q _N{ d{ç N{çb{z{X}d{d{ç}c{ç\}\}\}. N{i Z;ûnp{ç_{b{d{ p}w{áđ Q{D{ç p}w{áđ N{p{N{p{ç=Q} p{ç{b{ç3/4N{ç i z'N{m}p}ö.

W|î kE öd {Û} z U^ ö0 b{mNcm}öl {Upö. J_¶
p{=Û {ÄQ} D=\}öäd {Û} z Û^ n Ho|Z;p}mZ -
p{ {z I kNced{ \} 0Nco3}zn p{=\}ö; j }Q} Tbö d{
p}w\$ä N}p}ö; @cmÛöi, m}Vñî _öl {ö; p}wä
z«mßopñ m³QË ö²p{=\}N{=\}b{. C Q{^}n dQ
p}w\$ä b¼mNÁf½ ¶ d{zβl {=Q} m}Vñî d{x}f}ö _z0
Hpñ i \c ¶p}wäö p{=Û{n T? {UN{=\}b{.

\{ × pö¶I zñ N}b{. zöT¶ p}wäNcb}ö ü b{AzNç
m}í ü b{øq}βz= D=\}ö. @o|Zp}wä øzl {=o³4m}í
N{=\}o³ö=T{N{=\} \ö×p}βö, b}zmN{ oN{=\}
D=\}ö.

\{ × p{z}^a n, b{¶}nl {cN}m{ KNA \N¶Bp¼ö} -
\{ × zmQ} m}Nf½ ¶Anl {ln Om{E _Q} \};
Anl {ln u»p{Û î d}¾ ¶ \}, m}í N¼T¶E \{ × _¾
N{=\}@bCNñ z=bQdN{m}í N{=\}p} \cf}z=o¾
f}n z=T{N¾pñu»z=bç

m{ p{=b{Q} f»o|ö0 u}βc¶ T¶N{ö, _m}β_{b}ö
T{z} p{wäN{T²d}Z; b{NÁ b{dQ p{=b{Q} \ö0
p{¶} {Im} \}. m}í _d{m}W|Ûö0 N{=\}@o|Q¶
T{z}N¾p}ö.

Hp{x}ö @i öñ T{z}d}ö \ö @d{p{d{ p{ p²Zd¶
p}ÿ; Iü T? z·Ûö. W|QDQ} p} \özl {= @=_}
Ao³ç=ç öV=Q}d{ @i öñ T{z}d}ö \ö öq¶E {=
T{z}N¾ @z·ö\ö} p}ÿ; zö¾ç i ±l z·Ûö - ñN{

b{m#Q} D=\E T{ \}

@m^}U^3/4D=Z© ñ ÊVöÔ j }c#T{N} _{D|=Z;
p}wä_3/4_hzË|ðNCA T{ËzNAn Ewäð ñ p}wä N}ð
q{m{nNCBpß. @z|Ö\{p}w{ä p}w{ä N{E N{T}m}.

j 3/4 {n, TzT{n pzböð{p}wä p}wäNcf}ndQ=
eËd{p{|Û}d{øq}Bzp{ _{oÄ }m}. J_||p}wäNcN3/4z=
m}pZ= N{ \{T}o| _{N} p}wä øz| {=o3/4p{=ç_d{ _3/4
D=\}ö.

QËp}\N\{KN{zð u}c#TZ|ðNcp{|N N{N{Að
T, p}\#Z. Cmä DdQ p{mN\{b}ðNcp{|m{Q}
T}\. @N\{Hp{p}z« p{N{=}, A _{n}B_{p{|Û#
pzbZp}\{TeÖdË T1 "Ü.

T{p{=Û{n T}o| øc}n Êp{|b}n N{Q}m}. p}wä
z=Q T{ \Z|ðN{QËp}Ë; p{=çp}Ë;p}wä üb{
ðl ©Q p}\|p}wä øz| {= T{D}\}.

@cN}m{n Hz|Ö\© m}i N{øÛ{n N}m}; p}wä m}i \ç
p}wä T{z N{d|p}wä. T{zd{n T{ @cN}m{öÔ
z«D} p{ö1 {UN{=}\ @i W|Q} d{eD=}\}ö.

d{pß N{D}3/4DdQz|Ö\{Hp\{ñN{ @zN}m#
T1 {Ûj 3/4}\3/4p}Ë; A N{= i m{v=t=u}Ö - p}\CAD
i z N3/4 b}=_3/4p}\ç{p}{© _{N} {=bç d{pß
v=t=TN{=}\ p{öeËd{b{N{p}\{ñN{
N_{E}\{Q}d© D=Z|\}.

kNCl' e# 'l}n".

m}í q{m{\d} _d{N/n p{b^3/4b^1/mh" _p{ð _}p{f
f»Q{\N{=Z. øzQ{T^e=TN{=\} ød}ö. b}ðp{P
p}wäNc_{E NñQ{_{=bç @p{zm}D^3/4B=N} D_}âz=Q}
N{E_{}}m{.

p}^VU= e=TZ|ðNcm{p{öô p{b^O T? }|Üö. Cî j}cñ
p{P B_ m{b{}}n Vdç pñz p{p p}wäð _d{q{N^N^O
Ab{N^3/p}ö. _3Zn", b^1/P{, Qd{ñ" T^e\Z|ðNcA{E}öð{
p}wäð ðl {ø=T}ö.

l {b^O}ðNcpwäz|O\{KNZ; m^2\{ m^3/4 n E}l }|^=
m}B{AQ{_{^e _d{t}d}ÜnðO N^e\N{d{p}N}qç
N^OQçT}ö. @nn" @nn"Q} p}wäN^e\{b{. im} p}wäN{
@p{ç m}í inpç_{\^2 }@_ð z_}Ám}n" EBNm{çç
p{dN{A p{w}äö; inç d{\^2 }p{ç}E\çT}ö. q{U}{m}í
d{E}VöO, u}p{ç={öO zmQ} T^e\ð p{\^2 }p{ç}^=b{Q}
@_ð u}p{ç=_{ñNc@k{ ç= BèE, p{^k{^z^}n" z=ç
p{çç T{N^3/p}ö.

m}í Ncp{OÜp^2d{E}p{ç}bç o^3zöq{U}{p}ñ d{çç.
@=b{p{P o^3zn q{U}{p}ñ d{O}z|O\{q{U}{m}í l {b^O}ðN^1/p
p}\NczQç m}VU= BTAd} z=cçT{N^3}ð p{ç}^=b{ o^3zö
q{U}{p}ñö @^T}ö.

m}í T? {UN^e\ð zed{ñ" Iø"Z=Z.- Ü^e m{p^2d{uxñ"
p{ç }{ÜZ=, Tz|O\{p{ç}Zn Q{m}çç o^3/4 }Q}
Ao^3ç=TNf^1/pZ=, q{U}{p}ñ z=cNcp{P C z\çTz=,

qU}m}í Q}m€ç zp}l}l}m€ _çAd}p}f}úx€l}Z=, _dNç
pŪmN}ŷd}p}f=ŪNç_õp}Z. ed}n. T? {U=, øq}Bz=
o}p}wãð b}Q}k}T}N}p}Z=, øq}Bz}em}ö} b}m€
T? {U=, p}f=Ū}=Q}f=0}¼p}². x}p}Z}Z}Z=, Vd}ðNç
€\ó}¼Ad}Z}Ū}\{o}¼}Q} øzl }l}n. øT}m€T}N}f}¼p}Z=,
p}Ūzd}n. D=\Z=, C}m}Ū}z}\Z=.

b}¼m}h p}c}Ū}KN}N}N}N}N}N}f}¼Z}n. D=\Z. T}f}\}ö.
@}z}Ū}\{KN}\Q}Z}Z. p}f}m}N}\{ñN}\T}Ū}\.
z}d}Ū}c}N}m}k}n øzl }f=0}¼d}Q} B=_}!

u}p}l}d}Ū=Q} l }{b}õ}n}N}c}m}í z}B}l }f=Q} p}N}f}\b}. _d}{
Ū}î}ð}a}Q} p}wã}p}l}i; øq}Bz}\d}p}l}i}T}f}z}N}¼p}ö.
p}\N}c}\{x, B}_m}k}Q}n. zp}f=b}Q} D=\Z. T}f}\}ö.

ñ b}¼}€}H}b}¼}D}d}Ū} @}\p}f}ö} p}f}b}Ū}T}Ū. p}c}Ū}o}¼
D}d}Ū}p}Z}ð} d}m}N}€}T}\{-o}N}f}½}_b}¼}Q}n. T}f}l}m}N}f}\{

p}d}Ū=Vd}€}T}o}l}_z}Ū}Ū}n. T}Ū}m}k}. b}€}\€}ç}p}wã}ð
p}l}m}f}o}p}k} i}x}š}p}l}d}ö}ç}Æ} ð}V=_z}Ū}N}f}=\} p}²}ö}Q}ç
p}wã}_¼}p}Ū}x}=T}Ū. ŷ}l }{b}õ}b}¼}j}Q}
z}ü}l }z}\}m}k}p}w}š}ä.

I}d}Q}n. p}f=ç}Q}f}m}n. b}Q}p}f}i}T}f}p}N}f}ö}Ū} @}ð}Ū
u}N}m}Ū}ö}ç}Æ}ñ}p}w}š}ä}Q} T}f}N}¼} p}w}š}ä}p}Z}ð}ñ
q}Ū}p}f}N}c}T}f}N}f}=\} z}ð}N}¼}Z}=b}ç

B}_m}k}m}W}l}Ū}n}m}l }j}m}i}D}¼}z}m}z}z=k}z}z}^}n. T}Ū}l}Ū}ö.
p}wã}p}f=b}z}_d}l}d}T}f}k}n. B}b}p}m}N}f}A}m}í}n. T}f}d}

@zN}m}n Q{mεç p{|\E|\E' T, _d{ A m}i Nç
øÛ{\ø| dZD^a zôTf}Öö.

b{Äöô _d{p{in N³m}w}ä, _m{m}n}Q} _p{³/₄
zöT_zdQ p}wäNçBp}Bö. KN³A b{Äö³p{b}wä f}Z
zmé\{u}p{|\QCD=T}ö. u}p{=_m}i n=bmNz p{|\d{Q}
k{p{öp}Bö. qÛ{m}i inç d{\d{z}Ö\{z [\]D{Q}
pÿä @_ö V1 =T}ö - b}ð p{m²\{p{z|o| d{z=
VmQb}.

qÛ{p{h ü}b{m}i üî ên T? {UN^a\b}. l {ö}öN
zö VmQ¹/4{T/E, VmN¹A f¹/p{T/E, VmQd{z}Ö\{p{m³/p{ç
z p{|\ {= N³z= AQ}ö _zö _¹/₄b{m²\N^a\b}.
p{|\m¹l {=Û}n}dQ T³ZNcm}i f¹N^a\b}, z d}ü dQ
z=f}ö. l {ö}n T? "Ü, m}W|Ün V1 =T}. A m}i n
m}[^]n b¹/mNç {p}wäð u¹/b{m}\ç|Q} T^az N³/₄
m}l {j }m{ç p{=_b{p}wä m}i n Q{mεç T¹Q}
p{|\E|\ç}.

Hp\ç}ö p{|\d{z Ncdç Ad {Ao³/4 d{h T_z @N¹A¹ =ç
m}i n p}ÿ. p{|\Zp{|\ZiNçznü @\{Q}_{m}. b}=³/₄
p}\NçQm²= pç E z d{ç n N}p{h t d{p}wä b{m{ç n=T}n
i z N{ö m}i NçT¹ {Ao³/4 d{h T_z}\. @o|Z;p}wäð
T}m{ç b}Bm} Qp{öD^a p{ç}\ö Hç|Ö\ç.

NçZ= p{|\dQ p{|\d{z n d{p{ß j }Q{dQz}Ö\{
f>Q{\}_{m}, Nç¹z³/4DdQz}Ö\{f}m¹/₂}m. W|Q_zQ}
Qp{ö=T}.

m}í _d{m}W|UöU Ho| N}t} \{N}Z|\¾@o|Q|L d{
q{m}öÖ, Am³Q}ÚöÖ N}f} \{N³p}ö.

m}í b d{T}nÜ Bo| D=\}ö - f»b}dÖ p}b{Ün, W¾Z Ün
@_öÖ N{p}ö; W|p{ f»b} _m}ß_{\{ × øzl {|n
Nd{N³Ap}ö; A _m}ß_{p}ÜL {p{f, p{Zp}wáNc
AÊn; p{c}ÚdÖ= b{p}_{m}Ed{ c{m}Q¾E; k¾Wd{
@l {N{p{f} = b{øb}zN{\, _m}ß_{f;m}^N{n,
Np{D¾Q¾E; z=b}p{W{T}m{D¾p{T}ÆZ, Q}d{z{k} m}ÜNc
Üel {z_¾zD|f}n, zÖöÜ{

ñ p{p{N{D¾p{©\{m}N}n p}w{ä=Z|m{f - Hz|Ö\© ñ
p{f=c N³m}w{ä, p{f=c T{N}n m{f\© N³m}w{ä, T{N}N
N³m}w{ä. Hp{m{ Hp{m¾Q}v =T}ö d{p}ß. ñN{Hp{d}
j}Q} d{Æ_¶ @öÖ øzl {|n _ñ z{N{ö
öq{Æl =T{N{ö, KNÁu}mQ} z [}D{Q} @_d{
Aú=Tö¶{f_{\ö×c}ÆAq{Æm{z}m{T}.

T}m{f}\{m}í Emp}\²D=\}ö, d}d} k}zn
_ötdp}\, B_m{T}m{ö}p{m¾_²ö p}\, øQödd{
T}m{f}nNc_d{ö_l {ö p}\{N}p}ö.

m}í k¾Wd{ö¾m{N}n z}b}m}n D=Z|l · Qd{N{j}Q}
ANöQ} D=Z. _zÖ î d{N{f}\b}.

m}VÜ= T{z|Ö\{Hd¾Ö f}f}n N{Z}N³N{zÖb}f.
ùödd{_{c{m}Ü= Vm{N{Á=\} T{z}N³pZ= @p{z}m{f. ñ
c{m}Ü= d{p}ß öm{ßD{f}.