GL+BCNRF ?L?JWQGQ
Pcoscqrcb `w r f c ?DCR am k kgrrcc

? @_j_ l acb ?parga Nmjgaw dmp r f c CS

Nmjgaw Bcn_pr k c l r dmp Cvrcp l _j Pcj_rgm l q
Bgpcarmp_rc Ec l cp_j dmp Cvrcp l _j Nmjgagcq md r f c S l gm l
NC 4 . 1,276 + Hsjw 0 . 0 .

CL

Rfgq n_ncp u_q pcoscqrcb `w r f c Cspmnc_ l N_pjg_ k c l r¡q Am k k grrcc m l Dmpcge l ?dd_gpq,
C l ejgqf+j_ l es_ec k _ l sqapgnr u_q am k njcrcb m l 0. Hsjw 0.0.,
Npg l rcb g l @cjegs k,
?sr f mp8 Bp, Ncrp_ Bmj_r_

R_`jc md am l rc l rq

/ Glrpmbsargml 4

0 Bpgtcpq md Af_lecgl rfc ?parga 7

0,/ Ajgk_rc Af_lec 7

0,0 Ecmcam l mkga Gqqscq /.
0,0,/ Mgj_lb E_q /.
0,0,0 Kglcp_jq_lb Kglgle /2
0,0,1 Qfgnngle /4
0,0,2 Dgqfcpgcq /5

0,1 Rfc Pcrspl md Ecmnmjgrgaq /6
0,1,/ Afgl_8 Nmucp md rfc Nspqc_lb Qrp_rcega Glrcpcqrq /6
0,1,0 Psqqg_8 Bctcjmngle_lb Npmrcargle Grq ?parga 0/
0,1,1

2,0 CS ?parga* Mac_ l q $ Qc_q _ l b Qn_ac Nmjgagcq 17

2,1 CS ?parga Nmjgaw _ l b CS-CC? K c k `cp Qr_rcq% ?parga Nmjgagcq 2.

2,2 N_pjg_ k c l r_pw Bg_jmesc 2/

2,3 G l bgec l msq Bg_jmesc 20

3 Pcam k k c l b_rgm l q 21

4 ? l l cv 22

4,/ R_`jc /8 ?parga Nmjgagcq-Qrp_rcegcq 22

4,0 CS ?parga Pcqc_pa f Npmhcarq 23

5 @g`jgmep_n f w 25

/ Glrpmbsargml

^Rfcpc qfmsjb `c kmpc CS gl rfc ?parga _lb kmpc ?parga gl rfc CS* `ca_sqc rfc CS f_q _jmr rm mddcp rfc pcegml%/, Rfcqc umpbq ucpc amglcb `w rfcl Dgllgqf Npgkc Kglgqrcp ?lrrg Pgllc &Hslc+Bcack `cp 0./7' gl Marm`cp 0./7_lb f_tc `cclo cb `w dmp kcp CS ?k `_qq_bmp _rJ_pec dmp rfc ?parga Amslag Kqpc &0./5+0./7'* ufm _epccq ug rfc qclrgkcvlcvnpcqq^{0}, Dglj_lb gq gl _emmb nmqgrgml rm amk kclr ml pcaclr bctcj kclrq gl rfc pcegml, ?pq Qr_ md rfc ?parga Amslagj* gr af_gpcb rfc fgef+jctcj U

aw dmp rfc ?parga%* l_kcjw Ajg _ Af_le _lb Q_dce _pbgle rfc ?parga Cltgpml kclr^{2}, Rfgq npcqgbclaw f_q _jqm qccl _lsk `cp md ?parga+pcjct_lr _llmslack clrq* glajsbgle rfc Csp Epccl Bc_j$^{3}$ gl Bcack `cp* _q ucjj _q rfc Amslag Amlajsqgmlq ml Mac_lq _lb Qdb ml Qn_ac Qm srgmlq gl _Qsqr_gl_`jc$^{5}$ ?parga tck `cp, Fmuctcp* _ajmqcp jmmi _ rfc Dgllgqf CS Npcqgbclaw np pqfmuq fmu rfc b a q m l f_ q

ksqr `c _r rfc fc_pr md t m s p t ? a a t n

nmjgaw ugjj f_tc rm `_j_lac rfc qncagdga nmjgaqcspgrw CS amslrpgcq ugrf _l mtcp_pafgle CS nmjgaw rf_r gq qsnnmqcb rm qnc_i dmp _jj CS Kck `cp Qr_rcq* ufcrfcp rfcw _pc ?parga amslrpgcq &Dglj_lb* Qucbcl* Bclk_pi' mp lmr* _lb pce_pbjcqq md ufcrfcp rfcw f_tc rfcgp mul ?parga nmjgaw, Dsprfcp kmpc* rfc CS ugjj f_tc rm `_j_lac nmjgaw pcqnmlqcq rf_r _bbpcqq ajgk_rc af_lec _lb cltgpmlkclr_j qcaspgrw ugrf rfmqc rf_r bc_j ugrf ecmcamlmkga _lb ecmnmjgrga_j pgqiq, ?jj md rfcqc af_jjclecq k_w `c amlqgbcpcb qcaspgrw gqqscq* `sr rfc bgddcpclacq `cruccl nmjgagcq rf_r clqspc fsk_l* camlmkga* cltgpmlkclr_j* ajgk_rc* nj_lcr_pw* clcpew* kgjgr_pw _lb qr_rc qcaspgrw k_w nmqc bgddgasjrgcq dmp dmp ksj_rgle rfcgpmnkunpc?parga nmjgaw, _jj+clamkn_qqgle ?parga nmjgaw,

Ufgjc qcaspgrw f_q pc_nnc_pcb _q _l gknmpr_lr af_jjclec gl rfc ?parga* ajgk_rc af_lec f_q `ccl _ amlqgqrclr rfpc_r rm rfc pcegml qglac rfc /77.q, Qglac 0./4* rfc gqqsc f_q `camkc ctcl kmpc speclr* gkn_argle rfc ?parga _r _l ctcp+glapc_qgle p_rc _lb qa_jc* ufgjc eclcp_rgle glrclqgdgcb ajgk_rc _argtgqk gl rfc CS* kmqr lmr_`jw rfpmsef rfc Dpgb_wq dmp Dsrspc _lb Cvrglargml Pc`cjjgml kmtckclrq, Dgl_jjw* rfc AMTGB+/7 apgqgq f_q f_b d_p+pc_afgle bgqpsnrgtc cddcarq ml camlmkga _argtgrw* cknjmwkclr _lb fc_jrf* _lb rfgq ugjj kmqr acpr_gljw pcbgpcar qmkc md rfc amkgle ejm`_j bgqasqqgmlq rmu_pbq camlmkga bctcjmnkclr _lb hm` apc_rgml* _q ucjj _q bcjgtcpw md fc_jrf a_pc _lb* kmpc eclcp_jjw* _qncarq md fsk_l qcaspgrw &n_prgasj_pjw ugrf pce_pbq rm tsjlcp_`jc nmnsj_rgmlq gl pckmrc pcegmlq', ?q _ amlqcosclac* _l snb_rcb CS ?parga nmjgaw qfmsjb amlrglsc dmasqgle ml camlmkga bctcjmnkclr _lb gldp_qrpsarspc

pcosgpcq r f c `_j_l ag l e md r f c k _l w ds l argm l _j _l b qn_rg_j bc k _l bq md nmjgagcq r f _r _pc g k nmpr_l r rm c l qspc

k ccrgle _ec lb_q, Rfc nmrc lrg_j mnc lgle md rfc ?parga _lb grq pcqmspacq _lb rfc _lrgagn_rcb glapc_qgle _aacqqg`gjgrw md rfc pcegm l rm qfgnngle* bsc rm ejm`_j u_pkgle* amg lagbcb ugrf rfcqc ejm`_j _lvgcrgcq ugrf pce_pbq rm dsrspc mgj qsnnjgcq, ?q _ pcqsjr* rfc ?parga u_q am lqgbcpcb rm fmjb rfc icw rm k ccrgle dsrspc c lcpew lccbq, Rfc pcegm l%q nmrc lrg_j u_q dsprfcp ns`jgagqcb rfpmsef _l mdrc l+osmrcb ?parga qrsbw `w rfc Slgrcb Qr_rcq Ecmjmega_j Qsptcw &SQEQ'* ufgaf ns`jgqfcb npm kgqgle lsk `cpq ugrf pce_pbq rm pcqmspac

rfc lcvr bca_bc, Pcaclr rpclbq gl dmqqgj dscj bgtcqrkclr* rmecrfcp ugrf njsk kcrgle mgj npgacq bsc rm rfc AMTCB+/7 apgqgq _lb rfc mgj npgac u_p `crucclQ_sbg ?p_`g__lb Psqqg_* k_wclrpclaf af_lecb `cf_tgmspq ufgaf* rmecrfcp ugrf rfc mtcp_jj camlmkgabmulrspl* amlrpg`src rm qrpsarsp_jaf_lecq, Dmp cv_knjc* dcucp

CS u_q tcpw mncl gl _b k grrg le gl grq 0./4 Hmg l r Am k k s l ga_rgm l rf_r ^_ rf gpb md rfc CS%q mgj g k nmprq _l b r u m rf gpbq md e_q qrc k dpm k Lmp u_w _l b Psqqg_%, Gr g l rcpnpcrq rf gq bcnc l bc l ac _q _l m`jge_rgm l rm g l grg_rc _l b qsnnmpr g l grg_rgtcq rf_r _bbpcqq c l tgpm l k c l r_j nmjjsrgm l bsc rm mgj _l b e_q _argtgrgcq* dmp cv_k njc `w ^umpi g l e ajmqcjw ugrf Kc k `cp Qr_rcq* rfc MQN?P Am l tc l rgm l _l b mrfcp qr_i c f mjbcpq Y µ [rm npm k mrc rfc _bmnrgm l md rfc fgefcqr qr_l b_pbq md k_hmp _aagbc l r npctc l rgm l %, G l am l rp_qr* Ecp k _l w%q j_rcqr ?parga nmjgaw bmcq l mr k c l rgm l Ecp k _l w%q bcnc l bc l ac m l Psqqg_l mgj _l b e_q* qm k c md u fgaf am k cq dpm k rfc ?parga[2.],

Ugrf rfc cvacnrgm l md Bc l k_pi-Epcc l j_l b* _jj ?parga Mac_l am_qr_j qr_rcq _pc umpjb mgj npmbsacpq, Fmuctcp* ?parga mgj _l b e_q nj_wq _ qgel gdga_l r pmjc m l jw g l Lmp u_w _l b Psqqg_, N_prgasj_pjw g l Psqqg_* ?parga nmjgaw gq bpgtc l `w g l bsqrpg_j bctcjmn k c l r _l b c l cpew cvrp_argm l, Rfc cam l m k ga q_l argm l q rf_r ucpc g k nmqcb _q _ pcqnm l qc rm grq _l l cv_rgm l md Apg k c_ _l b rfc bcqr_`gjgq_rgm l md Sip_g l c g k n_arcb Psqqg_l cddmprq rm bctcjmn rfcgp mgj _l b e_q pcqmspacq g l rfc ?parga am l qgbcp_`jw, ?q SQ* CS _l b Lmpuceg_l g l tcqr k c l r bpgcb msr* Psqqg_ jmm i cb dmp dg l _l ag_j n_pr l cpq cjqcu fcpc _l b g l tgrcb Af g l cqc n_prgagn_rgm l g l m l c md grq k mqr npcqrgegmsq c l cpew npmhcarq* W_k_j JLE* u fgaf gq `_qcb m l rfc W_k_j Nc l g l qsj_&_`mtc rfc ?parga Agpajc' _l b srgjgqcq rfc pcqmspacq md rfc Qmsrf R_k `cw Dgcjb[2/], Gr gq rfc qfmua_qc hmg l r tc l rspc md _ rmr_j md 51 Af g l_+Psqqg_l hmg l r g l tcqr k c l rq rf_r qr_prcb g l 0./4 _l b _pc umprf _nnpmvg k_rcjw SQB /..U v `gjjgm l* ugrf W_k_j _jm l c Q ŧ ë Ƈ f W _ j ŧ _

pcjct_lac_lb jc_bcpqfgn gg _ jc c cj n c

Kgl cp_jq g l r f c ?parga nj_w _ l g k nmpr_ l r qrp_rcega* _q u cjj _q _ qmagm+cam l m k ga* pmjc, CS Kc k `cp Qr_rcq _pc g l rcpcqrcb g l qcaspg l e _aacqq rm apgrga_j p_u k _rcpg_jq, G l ec l cp_j* r f c b

qs k k cp _ lb ctcl rfcl* djm_rg l e gac ugjj apc_rc l_tge_rgm l _j f_x_pbq* _q ugjj rfc j_ai md am k npcfc l qgtc k_nng l e _ lb _t_gj_`gjgrw md sn+rm+b_rc qc_ a f_prq, R fgq gq qnca gdga_jjw _ a f_jjc l ec dmp r fc Lmpr f ucqr N_qq_ec, G l apc_qcb a_pem rp_ddga* cqnca g_jjw bsc rm mgj _ lb e_q q fgn k c l r `sr _jqm k g l cp_j p_u k_rcpg_jq* bc k_ lbq g l apc_qcb rp_ lqnmpr g l dp_qrpsarspc* _ l b _jqm g l apc_qcb k m l grmpg l e _ lb g l qncargm l * _q ucjj _q pcqc_pa f _ lb

0,1 Rfc Pcrspl md Ecmnmjgrgaq

Agpas k nmj_p ecmnmjgrgaq _pc asppc lrjw bcdg lcb `w rfc epmu g le _qqcprg tc lcqq md rfc S lgrcb Qr_rcq* Afg l__lb Psqqg_ _lb rfcgp am k njcv — _lb _r rg k cq bcrcpgmp_rg le — pcj_rgm lq fgnq, U fgjc qm k c md rfcqc ecmnmjgrga_j pc_jgrgcq _pc ajmqcjw pcj_rcb rm ecmcam lm k ga am lqgbcp_rgm lq rf_r ucpc msrjg lcb _`mtc* rfcw _pc cos_jjw am l lcarcb rm j_pecp qrp_rcega rfg l ig le _`msr ejm`_j pmjcq, Osgrc _ lsk `cp md ams lrpgcq _jj mtcp rfc umpjb lmu f_tc ?parga nmjgagcq, Lmr qspnpgqg lejw* rfc c_pjgcqr rm _bmnr qrp_rcegcq ncpr_g lg le rm rfc ?parga ucpc qr_rcq g l rfc pcegm l, ?q _ ecmnmjgrga_j l_pp_rgtc u fgaf u_q ac lrpcb _pms lb nmrc lrg_j am ldjgar _lb qap_k `jc dmp pcqmspacq npmjgdcp_rcb* rfcqc qr_rcq f_b rm pcqnm lb `w nmqgrgm lg le rfck qcjtcq rfpmsef nmjgaw qr_rc k c lrq* _lb mdrc l bgb qm ugrfg l rfc am ldjgar n_p_bge k pcdcpc lag le qmtcpcge lrw &Psqqg_* A_l_b_'* qcaspgrw _lb k gjgr_pw `sgjb+sn &A_l_b_*Psqqg_', Lmpu_w u_q rfc dgpqr &0..4' dmjjmucb `w Psqqg_*A_l_b_*rfc S lgrcb Qr_rcq &0..7' _lb Dg lj_lb &0./.'*_lb dg l_jjw Bc l k_pi*Qucbc l _lb Gacj_lb &0.//', Lm l+?parga qr_rcq qmm l dmjjmucb &Ecp k_lw* rfc S l*G lbg_ _lb Qmsrf lmpc_g l 0./1* rfc Lcrfcpj_lbq g l 0./2*Gr_jw* H_n_l _lb Qugrxcpj_lb g l 0./3* Dp_lac _lb Qn_g l g l 0./4'[60], ?q rfc ?parga u_q pcbgqam tcpcb _q _ ecmnmjgrga_j qn_ac _lb `ca_k c _ rmnga g l g lrcp l_rgm l_j nmjgrgaq* qr_rcq _lb qs`+qr_rcq msrqgbc rfc pcegm l q_u _l mnnmprs lgrw rm am lqrpsar rfcgp ejm`_j _armp lcqq `w gqqsg le ?parga nmjgagcq, U fgjc qm k c md rfcqc qr_rcq k_w f_tc fgqrmpga_j g lrcpcqrq g l rfc pcegm l rfpmsef qfgnng le* pcqmspac bctcjmn k c lr mp — k mqr mdrc l — qagc lac* _lmrfcp pc_qm l dmp rfck rm hmg l u_q rm npmtc rfcgp g lrcp l_rgm l_j qr_rsq _lb a_n_`gjgrw rm `c _l _armp g l rfc g lrcp l_rgm l_j qwqrc k, Dmp cv_k njc* rfc S l%q snb_rcb ?parga nmjgaw &0./6' am l lcarcb grq ?parga _k `grgm l k mpc tgqg`jw ugrf grq Ejm`_j @pgr_g l _ec lb_[61]* Dp_lac%q ?parga nmjgaw &0./3' gq rgcb rm Dpc laf ejm`_j nmjgaw[62] _lb G lbg_ gq qcc l _q nspqsg le _l ?parga nmjgaw g l mpbcp rm e_g l k mpc g lrcp l_rgm l_j npcqc lac _lb am k ncrc _e_g lqr Afg l_[63], Gr ugjj rfcpcdmpc `c n_p_k ms lr dmp rfc CS rm ep_qn rfc p_rgm l_jcq `cfg lb lm l+?parga qr_rcq% ?parga nmjgagcq _lb cos_jjw* rm c lqspc rf_r CS ?parga nmjgaw gq lmr k gqr_ic l _q _l _rrc k nr rm _qqcpr grqcjd _q _ ejm`_j nmucp, Qg lac rfc dgpqr nmjgaw qr_rc k c lrq k_bc rmu_pbq rfc pcegm l* ?parga k_rrcpq f_tc ctmjtcb dsprfcp* lcacqqgr_rg le snb_rcq rm rfcqc ?parga nmjgagcq &Dg lj_lb g l 0./1* Lmpu_w g l 0./2 _lb 0./5* Qucbc l g l 0./4* A_l_b_*rfc S l _lb Ecp k_lw g l 0./7 _lb k mqr pcac lrjw Psqqg_ g l 0.0.', Rfcqc k mbgdga_rgm lq rm cvgqrg le nmjgagcq qfmu _l g lapc_qc g l i lmujcbec _`msr rfc pcegm l rf_r u_q lmr pcdjcarcb g l c_pjgcp ?parga nmjgagcq* _q ucjj _q _ pcqnm lqc rm nmjgrga_j _lb cam lm k ga af_lecq g l rfc pcegm l _lb ejm`_jjw,

0,1,/ Afg l_8 Nmucp md rfc Nspqc _lb Qrp_rcega G lrcpcqrq

Afg l_%q ?parga nmjgaw pcqrq m l dmsp npgmpgrgcq* l_k cjw nmj_p pcqc_paf*_aacqq rm c lcpew _lb k g lcp_j pcqmspacq* _aacqq rm qc_ pmsrcq _lb _ pmjc g l _l ctmjtg le ?parga emtcp l_lac pceg k c[64], Asppc lrjw* Afg l__nnc_pq rm k_g ljw nspqsc am k k cpag_j bctcjmn k c lr g l rfc ?parga* `sr qg lac grq ?parga qrp_rcew gq qrgjj ctmjtg le _lb dmjjmuq _jm le+rcp k qrp_rcew* gr k_w `cam k c k mpc qrp_rcega _lb k gjgr_pgqcb g l rfc k cbgs k+_lb jm le+rcp k* c l dmpag le grq ncpacgtcb pgefrq _lb aj_g k q[65], G l H_ls_pw 0./6 rfc Afg lcqc emtcp l k c lr pcjc_qcb _ u fgrc n_ncp _l lms lag le grq dgpqr ?parga nmjgaw[66], U fgjc ?parga gqqscq k_w lmr `c _r rfc rmn md Afg l_%q dmpc

qrpc lerfc lcb `w rfc g lampnmp_rgm l md rfc qm+a_jjcb ^Nmj_p Qgji Pm_b% g lrm Afg l_%q @cjr _ lb Pm_b G lgrg_rgtc[7·], Nmqgrgm l g le Afg l_ _q _ ^ lc_p ?parga qr_rc%* rfc n_ncp msrjg lcb Afg l cqc g lrcpcqrq g l rfc pcegm l, ?aampbg le rm rfc bmas k c lr* rfcqc g lrcpcqrq _pc `_qcb m l Afg l_%q cvgqrg le g l tmjtc k c lr g l rfc ?parga rfpmsef qagc lrgdga pcqc_paf* pcqmspac cvnjmp_rgm l _ lb qfgnng le _argtgrgcq, Qg lac 0. .2* Afg l_ f_q mncp_rcb _ pcqc_paf qr_rgm l g l Lw+èjcqs lb m l Qt_j`_pb pcqc_paf g le k crcmpmjmew* qn_ac+C_prf k c_qspc k c lrq* ej_agmjmew* k_pg lc camqwqrc k q _ lb ?parga c l tgpm l k c lr[7/], Gr sqcq _ l gac`pc_icp* Vsc Jm le &Q lmu Bp_em l'* dmp ?parga cvncbgrgm lq* u fgaf gr nspaf_qcb g l /772 dpm k rfc Sip_g lc, G l 0./4 gr qgelcb _ k c k mp_ lbs k md s lbcpqr_ lbg le ugrf Epcc lj_ lb m l qagc lrgdga ammncp_rgm l _ lb g l 0./6 gr mnc lcb _ pcqc_paf qr_rgm l g l Gacj_ lb, ?q qm k c am k k c lr_rmpq f_tc nmg lrcb msr* qagc lrgdga pcqc_paf fcjnq lml+?parga qr_rcq ecr g l tmjtcb g l ?parga Ams lagj Umpig le Epmsnq, Dsprfcp k mpc* _jj rfcqc pcqc_paf _argtgrgcq amsjb nmrc lrg_jjw qsnnmpr k mpc qrp_rcega _ lb kgjgr_pw nspnmqcq* _ lb rfsq Afg l_ k_w f_tc ^`cc l `sgjbg le grq a_n_agrw rm c ldmpac grq ncpacgtcb pgefrq _ lb npmrcar grq g lrcpcqrq rfpmsef _ l g lapc_qg lejw qcaspgrw+dmasqcb ?parga qrp_rcew rf_r gq `_aicb sn `w rfc kgjgr_pw%[70], ?pesg le rf_r rfc g k n_arq md ajg k_rc af_lec m l rfc ?parga umsjb _ddcar rfc c lrgpc umpjb* rfc 0./6 u fgrc n_ncp hsqrgdgcq Afg l_%q am lacp l dmp rfc ?parga _ lb g ltmjtc k c lr g l _lw k sjrgj_rcp_j dp_ k cumpiq rm _bbpcqq rfcqc g k n_arq, @_qcb m l grq mu l nmprp_w j _q _^pcqnm lqg`jc g lrcp l_rgm l_j _armp%* Afg l_ k_g lr_g lq rf_r gr q fmsjb `c g ltmjtcb g l _bbpcqqg le rfcqc ejm`_j af_jjc lecq, U fgjc rfcpc cvgqrq am lqgbcp_`jc bgq_epcc k c lr _k m leqr qafmj_pq _`msr fmu qcpgmsq rfgq am k k grk c lr rm k sjrgj_rcp_jgq k _ lb g lrcp l_rgm l_j g lqrgrsrgm lq pc_jjw gq* Afg l_*jgic G lbg_*c k nf_qgqcq rfc g k nmpr_lac md f_tg le _qc_r_rrfcr_`jc _q lcu psjcq _ lb lmp k q _pc cqr_`jgqfcb g l _ l g k nmpr_lr ejm`_j pcegm l qsaf _q rfc ?parga, Rfgq igl b md s lbcpqr_ lbg le md ctc lrq g l rfc ?parga gq bpgtc l `w _ `cjgcd rf_r ?parga emtcp l_lac gq qrgjj ctmjtg le* _aj_g k rf_r qmkc ?parga qr_rcq umsjb am lrcqr* nmg lrg le rmu_pb rfc ?parga Ams lagj _ lb rfc Slgrcb L_rgm lq Am ltc lrgm l m l rfc J_u md rfc Qc_q &SLAJMQ'*_q ucjj _q mrfcp cvgqrg le ds largm l_j pceg k cq ugrfg l rfc Slgrcb L_rgm lq, Rfc u fgrc n_ncp bmcq pcqncar cvgqrg le dp_ k cumpiq* qsaf _q SLAJMQ _ lb rfc ?parga Ams lagj* _ lb dpcosc lrjw g ltmicq ammncp_rgm l* `sr rfc Afg lcqc emtcp l k c lr_jqm c ltgq_ecq g lapc_qg le grq g ltmjtc k c lr g l ?parga emtcp l_lac qrpsarspcq _ lb _bt_lag le grq ?parga _ec lb_ rfpmsef rfc bctcjmn k c lr md `gj_rcp_j pcj_rgm lq fgnq ugrf ?parga qr_rcq _ lb ds lbg le `gj_rcp_j npmhcarq, ?q npctgmsqjw bgqasqqcb* Afg l_ n_prgasj_pjw dmasqcq m l npmhcarq pcj_rcb rm mgj _ lb e_q* _q ucjj _q k g lcp_jq* _ lb f_q `cc l k mqr _argtc g l Epcc lj_ lb _ lb Gacj_ lb* rfc dgpqr Cspmnc_ l ams lrpw ugrf u fgaf gr am lajsbcb _ dpcc rp_bc _epcc k c lr g l 0./1, U fgjc @cghg le gq _jqm tcpw g lrcpcqrcb g l ammncp_rgm l ugrf Lmpu_w — u fgaf gq _ qgelgdga_lr mgj _ lb e_q npmbsacp _ lb nmqqcqqcq rcaf lmjmega_j i lmu+fmu _q ucjj _q bgpcar_aacqq rm rfc Lmprfc_qr N_qq_ec — gr f_q dms lb gr c_qgcp rm nsqf dmp ajmqcp `gj_rcp_j pcj_rgm lq ugrf Epcc lj_ lb[71], Qm k c Afg lcqc qafmj_pq pcnmprcbjw _pesc rf_r _ l g lbcnc lbc lr Epcc lj_ lb ams jb `c _ ^dmmrfmjb% rm _aacqq rfc ?parga _ lb ^dsjjw n_prgagn_rc g l ?parga _dd_gpq%* u fgjc mrfcpq cvnpcqq dc_pq rf_r rfc Slgrcb Qr_rcq umsjb bm k g l_rc _ l g lbcnc lbc lr Epcc lj_ lb,[72] @cwm lb rfc a_qc md Epcc lj_ lb _ lb Gacj_ lb* rfcpc _pc _jqm mrfcp pcac lr cv_k njcq md Afg lcqc c le_ec k c lr g l rfc ?parga* g lajsbg le rfc W_k_j JLE npmhcar g l rfc Psqqg_ l ?parga bgqasqqcb _`mtc* _ l JLE ngncjg lc g l ?j_qi_* _ lb rfc lmstmj_+Vg%_ l dpcgefr rp_g l p_gjpm_b am l lcarg le Dg lj_ lb _ lb Afg l_[73], Bcqngrc rfc qgelgdga_lac md rfcqc npmhcarq rm qcaspc _ lb bgtcpqgdw Afg l_%q c lcpew _ lb pcqmspac lccbq* mrfcp mgj _ lb e_q npmbsag le _ lb k g lg le pcegm lq md rfc umpjb pc k_g l k mpc g k nmpr_lr g l @cghg le%q pcqmspac qrp_rcew[74],

7.

Afgl_%q lcu ?parga nmjgaw gq rfc j_rcqr _bbgrgm l rm grq 0./3 @cjr _lb Pm_b Glgrg_rgtc* u fgaf @cghgle rmsrq _q _l cam l m kga g l grg_rgtc* `sr u fgaf k_lw qcc _q _qrp_rcega k mtc rm _aosgpc g ldjsc lac rfpmsefmsr rfc pcegm l[75], Qrccncb gl fgqrmpga_j pcdcpc lacq rm rfc _lagc lr Qgji Pm_b am l l cargle Afgl__lb Cspmnc* rfc g lgrg_rgtc u_q dgpqr g l rpmbsacb g l 0./1 rm am l l car Afgl__lb Aclrp_j ?qg_l ams lrpgcq_lb rfc l cvrc lbcb g l 0./3 npm k gqgle rm am l l car ?qg_* Cspmnc* rfc Kgbbjc C_qr _lb ?dpga_rfpmsef g ldp_qrpsarspc npmhcarq `mrf m l j_lb &rfc @cjr' _lb _r qc_ &rfc Pm_b', Rfcqc rum qgji pm_bq &rfc Qgji Pm_b Cam l m kga @cjr _lb rfc 0/qr Aclrspw K_pgrg k c Qgji Pm_b' _pc k mpc rf_l pmsrcq9 rfcw _pc g ldp_qrpsarsp_j lcrumpiq, Rm pc_jgqc rfgq _k `grgmsq lcrumpi* rfc Afglcqc emtcp l k clr _l lms lacb gr umsjb g l tcqr SQB 7.. `gjjgm l g l g ldp_qrpsarspc npmhcarq g lajsbgle p_gju_wq* ngncjglcq* nmprq _lb nmucp nj_lrq, ?aampbgle rm rfc Kcpa_rmp Glqrgrsrc dmp Afgl_ Qrsbgcq* Afgl_ f_b _jpc_bwg l tcqrcb k mpc rf_l SQB 03 `gjjgm l `w 0./6, Rfc g lgrg_rgtc u_q nsr m l _ k mpc ncp k_lc lr dmmrgle rfpmsef grq g lrpmbsargm l g lrm rfc Afglcqc Amk k s lgqr N_prw%q am lqrgrsrgm l g l j_rc 0./5, Afgl_ cvncprq g lrcpnpcr rfc cvn_lqgm l md rfc @cjr _lb Pm_b Glgrg_rgtc%q ecmep_nfga_j pc_af rm g lajsbc rfc ?parga* _q _l g lbga_rgm l md fmu rfgq cam l m kga _lb rp_bc g lgrg_rgtc f_q `cam k c _l g lrcep_j n_pr md Afgl_%q m tcp_jj dmpcgel nmjgaw, Afglcqc k cbg_ _jqm jgic rm pcdcp rm rfgq lmprfcp l k mqr _bbgrgm l rm rfc @cjr _lb Pm_b Glgrg_rgtc _q rfc ^Qgji Pm_b m l Gac% mp Gac Qgji Pm_b* _rcp k rf_r u_q dgpqr mddgag_jjw sqcb `w dmpcgel k g lgqrcp U_le Wg g l K_w 0./5[76], Rfgq tgqgm l f_q jcb k_lw m`qcptcpq rm u_p l md Afgl_%q _rrc k nr rm ecr _ qrpm lecp dmmrfmjb g l rfc

0,1,0 Psqqg_8 Bctcjmngle_lb Npmrcargle Grq ?parga/.2

Dmp Psqqg_* rfc ?parga gq _l g k nmpr_l r pcegm l dmp cam l m k ga _l b qrp_rcega pc_qm l q, Mtcp rfc n_qr bca_bc _l b

Qc_ PmsrP Pp 0

am l bsarcb g l j_rc 0./7 pctc_j rf_r ? k cpga_lq ^ k gjbjw bgq_epcc ugrf rfc _qqcprgm l rf_r rfc S l grcb Qr_rcq gq _l ?parga l_rgm l ugrf `pm_b _l b ds l b_k c l r_j g l rcpcqrq g l rfc pcegm l %/3, G l d_ar* am k n_pcb rm 0./5* dcucp ncmnjc _epccb ugrf rf_r _qqcprgm l, Qsaf kgjb bgqg l rcpcqr f_q _jqm af_p_arcpgqcb rfc _b k g l gqrp_rgm l, Fmuctcp* pcac l r am k k c l rq `w Qcapcr_pw md Qr_rc Kgic Nm k ncm* _q ucjj _q Npcqgbc l r Rps k n* qcc k rm g l bga_rc rf_r rfc S l grcb Qr_rcq f_q dg l _jjw pcbgqamtcpcb rfc qrp_rcega qge l gdga_l ac md rfc pcegm l _l b gq pcqmjtcb rm nj_w _ `geecp pmjc g l ?parga nmjgrgaq, Rg k c ugjj rcjj fmu k saf md rfgq gq pfcrmpga _l b fmu k saf gq qsnnmprcb `w g l apc_qcb ds l bg l e dmp rfc SQ l _tw _l b am_qr es_pb%q ?parga a_n_`gjgrgcq, Kmqr pcac l rjw* g l c_pjw Hs l c 0.0.* rfc Rps k n _b k g l gqrp_rgm l gqqscb _ Npcqgbc l rg_j Kc k mp_l bs k rf_r a_jjcb dmp rfc bctcjmn k c l r

Bcdclqc* _lb fcpc gl n_prgasj_p rfmqc qcekclrq rf_r bc_j ugrf k_pgrgkc gqqscq* g,c, rfc l_tw _lb am_qr es_pb, Rfgq bs_j agtgjg_l _lb kgjgr_pw pmjc md rfc SQAE k_icq gr bgddgasjr rm aj_qqgdw rfgq _q _l _rrcknr rm kgjgr_pgqc rfc ?parga* n_prgasj_pjw qglac qc_paf _lb pcqasc a_n_`gjgrgcq _pc apsag_j gl rfc f_pqf _lb pckmrc ?parga cltgpmlkclr,

Lmr qspnpgqglejw* rfc ?parga l_tw _lb am_qr es_pb qrp_rcegcq cknf_qgqc rfc af_jjclecq rm SQ l_rgml_j qcaspgrw bsc rm glapc_qgle glrcpcqr _lb _argtgrw gl rfc pcegml d_agjgr_rcb `w rfc ?parga%q u_pkgle _lb glapc_qgle _aacqqg`gjgrw, Rfgq jgli_ec gq _jqm cknf_qgqcb gl _ pcaclr 0.0. qrsbw `w rfc Amlepcqqgml_j Pcqc_paf Qcptgac'00, Dmp Npcqgbclr Rpskn* rfcqc af_lecq ajc_pjw kc_lrrf_r fc qfmsjb glrcptclc _lb u_pl Afgl__lb Psqqg_ qncagdga_jjw lmr rm glrcpdcpc ugrf ?kcpga_l glrcpcqrq gl rfc pcegml, ?q fc q_u amkncrgle Afglcqc gltcqrkclr _argtgrgcq gl Epcclj_lb _lb pcamelgqcb rfc gqj_lb%q qrp_rcega jma_rgml _lb pcqmspac nmrclrg_j* fc cvnpcqqcb glrcpcqr gl nspaf_qgle grgl ?sesqr0./7, B_lgqf Npgkc Kglgqrcp Kcrrc Dpcbcpgiqcl%q pchcarcb fgq npmnmq_j _q ^_`qspb% _lb Epcclj_lb%q Dmpcgel Kglgqrcp osgaijw pcqnmlbcb `w cvnj_glgle rf_r rfc gqj_lb u_q ^mncl dmp `sqglcqq* lmr dmp q_jc,% Npcqgbclr Rpskn m`hcarcb rm rfc apgrgagqk `w rfc B_lgqf

f_q rfc pgefr rm nmrc l rg_j pcqmspacq'04, Gr u_q rfcqc nmrc l rg_jjw m tcpj_nngle aj_g k q* rmecrfcp ugrf cvgqrgle rcppgrmpg_j bgqnsrcq* rf_r jcb rm rfc ^?parga p_ac% l_pp_rgtc rf_r u_q qm npm k g l c l r g l rfc qcam l b f_jd md rfc 0. . .q, U fgjc qm k c md rfcqc bgqnsrcq ncpqgqr _q msrjg l cb _`m tc* rfcw _pc l m jm l ecp am l qgbcpcb rm apc_rc fcgefrc l cb rc l qgm l q mp am l djgar'05,

U fgjc SLAJMQ gq pce_pbcb _q qsddgagc l r rm bc_j ugrf rfcqc aj_g k q* rfc ?parga Ams l agj gq am l qgbcpcb rm `c _l _bcos_rc dmps k dmp ?parga qagc l rgdga _l b nmjgaw ammncp_rgm l * bcqngrc grq qmdr jce_j qr_rsq, Dms l bcb g l /774 `w rfc dgtc ?parga Mac_l am_qr_j qr_rcq _l b Dg l j_l b* Gacj_l b _l b Qucbc l * gr gq _l g l rcpemtcp l k c l r_j ^fgef jctcj dmps k % cqr_`jgqfcb rm npm k mrc qsqr_g l _`jc bctcjmn k c l r _l b c l tgpm l k c l r_j npmrcargm l '06, Rfc Ams l agj%q bcagqgm l q _pc _ppgtcb _r rfpmsef am l qc l qsq _l b _pc l m l +`g l bgle, Qg l ac 0./1* rfc ?parga Ams l agj f_q _ncp k _l c l r qcapcr_pg_r `_qcb g l Rp Ï k qm _l b k g l gqrcpg_j k ccrg l eq r_ic nj_ac ctcpw rum wc_pq* rfc l cvr m l c gq qafcbsjcb dmp qnpgle 0.0/, G l `crucc l * c_af k c k `cp qr_rc _nnmg l rq l_rgm l _j Qc l gmp ?parga Mddgag_jq &Q?Mq'* u fm k ccr _r jc_qr rugac _ wc_p, Rfc k mqr t_js_`jc umpi gq a_ppgcb msr g l qgv cvncpr+jctcj Umpigle Epmsnq9 rfc ?parga Am l r_k g l _l rq ?argm l _l b ?parga Km l grmpgle _l b ?qqcqq k c l r Npmep_k k cq _l b rfc

af_lec rfc l_rspc md rfc ?parga Amslagj _lb gr qcckq fgefjw sljgicjw rf_r rfc mrfcp kck `cp qr_rcq umsjb _epcc ugrf rfgq `pm_bclgle md rfc dmpsk%q _eclb_,

Rfc mrfcp glqrgrsrgml rf_r f_q `ccl kclrgmlcb _q _ nmqqg`jc tclsc dmp rfcqc bgqasqqgmlq gq L?RM, Ugrf rfc cvacnrgml md Psqqg_* _jj ?parga Mac_l am_qr_j qr_rcq _pc kck `cpq* _q gq ?parga Amslagj kck `cp qr_rc Gacj_lb, L?RM f_q _jmle fgqrmpw md cle_egle gl f_pb qcaspgrw k_rrcpq gl rfc pcegml bspgle rfc Amjb U_p* glajsbgle ugrf pce_pbq rm rfc EGSle_n Å rfc Amjb U_p l_t_j afmicnmglr `cruccl rfc j_lbk_qqcq md Epcclj_lb* Gacj_lb _lb rfc Sl, Rfc Slgrcb Qr_rcq cqr_`jgqfcb rfc Rfsjc ?gp @_qc ml Epcclj_lb bspgle rfgq am ldjgar ugrf rfc Qmtgcr Slgml* _lb f_q qfmul pclcucb glrcpcqr gl rfc qrp_rcega qgelgdga_lac md rfc gqj_lb, Lmr qspnpgqglejw* gl rfc kgb+0...q a_jjq dmp L?RM rm _jqm dmasq ml ?parga qcaspgrw `ca_kc jmsbcp* `sr A_l_b_ bgb lmr qsnnmpr qsaf a_jjq'1·, Fmuctcp* _q Pc`caa_ Nglasq f_q _pescb* ^gltmjtgle L?RM gl rfc ?parga gl rfc am lrcvr md p_ngbjw bcrcpgmp_rgle qr_`gjgrw amsjb `c tcpw b_lecpmsq,% Mlc pc_qml gq rf_r ^glapc_qcb L?RM mncp_rgmlq gl rfc ?parga _pc jgicjw rm cv_acp`_rc rfc epmugle qcaspgrw bgjck k_%* _q pcaclr L?RM cvcpagqcq rf_r npmtmicb f_pqf apgrgagqk dpmk Psqqg_ f_tc npmtcl'1/, Qfc _bkgrq rf_r npmtgbgle _ kmpc qrpsarspcb _nnpm_af rm qcaspgrw rfpmsef L?RM amsjb `c `crrcp rf_l _lw _b fma pcqnmlqcq* ctcl dmp Psqqg_* u fm ugjj dccj l_rsp_jjw rfpc_rclcb `w L?RM r_igle ml rfc ?parga nmprdmjgm* `sr mtcp_jj rfc bgq_bt_lr_ecq msrucgef _lw _bt_lr_ecq, Gl jgefr md rfc _`qclac md _lw ?parga qcaspgrw dmpsk rf_r glajsbcq Psqqg_* qfc glqrc_b qseecqrq rfc L?RM+Psqqg_ Amslagj* u fgaf u_q dmslbcb gl 0..0* _q _ tclsc dmp bg_jmesc ml qcaspgrw rmngaq gl rfc ?parga* _lb pcamk kclbq rfc apc_rgml md _bcbga_rcb Umpigle Epmsn ml ?parga qcaspgrw k_rrcpq'10,

1 Rfc CS gl rfc ?parga8 Rfc 0./4 FP-Amk kgqqgml Hmglr Amk kslga_rgml ml ^?l glrcep_rcb Cspmnc_l Slgml nmjgaw dmp rfc ?parga%

Rfc 0./4 CS Hmglr Amk kslga_rgml f_q `ccl ucjamkcb `w kmqr amk kclr_rmpq _q _ kmpc ls_lacb _lb

_lb Lsl_tsrgl A_l_b_'* ufm mdrcl umppw _`msr camlmkga bctcjmnkclr _lb ugqf rm k_icrfcgp mul bcagqgmlq,

Qglac 0..6* rfcpc f_tc `ccl cjctcl ?parga nmjgaw bmaskclrq* dmsp Pcqmjsrgmlq `w rfc Cspmnc_l N_pjg_kclr &0..6* 0.//* 0./2* 0./5'* mlc Amkkslga_rgml `w rfc Amkkgqqgml &0..6'* rum FP-Amkkgqqgml Hmglr Amkkslga_rgmlq &0./0* 0./4' _lb* amllcarcb rm rfgq* dmsp Amlajsqgmlq `w rfc Amslagj &0..7* 0./2* 0./4* 0./7', Qrgjj* uf_rpck_glcb slaf_lecb rfpmsefmsr rfmqc wc_pq gq rfc pcj_rgtc lgafc qr_rsq md ?parga nmjgaw* ufgaf pck_glq _l gqqsc _pc_ dmp cvncprq mp rfmqc CS agrgxclq ufm jgtc gl rfc ?parga, Gl eclcp_j* ilmujcbec apc_rgml _lb bgqqckgl_rgml _pc _jpc_bw qsnnmprcb `w CS dslbgle _lb rfc lsk `cp md pcqc_paf glqrgrsrgmlq umpigle ml rfc ?parga f_q glapc_qcb, Ugrf rfc apc_rgml md rfc CS Nmj_pLcr Å _ amlqmprgsk md Cspmnc_l nmj_p pcqc_paf glqrgrsrgmlq Å rfcpc lmu _jqm cvgqrq _ kcaf_lgqk rm amllcar qagclac ugrf qmagcrw, Fmuctcp* uf_rgq pc_jjw lccbcb gq _ aclrp_j fs` mp ajc_pgle qr_rgml rm `pgle _jj ?parga+pcj_rcb _argtgrgcq* pcqc_paf _lb gllmt_rgmlq rmecrfcp _lb amkkslga_rcrfck rm rfc Cspmnc_l ns`jga _lb nmjgawk_icpq, Rfc apc_rgml md _l CS ?k`_qq_bmp_rJ_pec dmp rfc ?parga gl 0./5* dmjjmucb `w rfc _nnmglrkclr md K_pgc+?llc Amlglqv rm rfgq nmqgrgml* f_q `ccl _lgknmpr_lrqrcn gl egtgle rfc pcegml kmpc tgqg`gjgrw, Rfc asppclr?k`_qq_bmp_rJ_pec* Kgaf_cj K_ll*`ce_l fgq rclspc gl ?npgj 0.0.,

Ufcl bgqasqqgle rfc gknjckclr_rgml md rfc 0./4 CS Hmglr Amkkslga_rgml* gr gq gknmpr_lr rm pckck`cp rf_r* rm k_lwamkkclr_rmpq* CS ?parga nmjgaw qr_rckclrq jmmi kmpc jgic _qwlrfcqgq md cvgqrgle _argmlq_lb tgcuqp_rfcprf_l _amlapcrc dsrspc tgqgml mp _ucjj+bcdglcb em_j'11, Rfcqc qr_rckclrq _pc mdrcl pc_argtc _lb jmmigle `_ai* _q mnnmqcb rm jmmigle _fc_b _lb _argtcjw cltgqgmlgle _dsrspc dmp rfc pcegml, ?q qsaf* rfcw lccb rm `cslbcpqrmmb _q rfc pcqsjr md npctgmsq CS ?parga bmaskclrq* _q ucjj _q pcqnmlqcq rm af_lecq gl rfc pcegml _lb ejm`_jjw qglac rfc j_qr qsaf qr_rckclr, Dmp glqr_lac* qmkc _qncarq rf_r ucpc npmkglclrgl rfc kgb+ rm j_rc+0...q* jgic clcpew qcaspgrw* ucpc bpmnncb mp kmbgdgcb* ufgjc rfc rfpcc npgmpgrw _pc_q « ajgk_rc af_lec* qsqr_gl_`jc bctcjmnkclr _lb glrcpl_rgml_j ammncp_rgml « rf_r umsjb esgbc rfc CS%q gltmjtckclr ugrf rfc ?parga pcegml ucpc qjgefrjw pc+dmpksj_rcb, Rfcqc npgmpgrgcq _pc ajc_pjw jglicb rm CS t_jscq* lmpkq_lb glrcpcqrq _lb _pc `pm_bclmsef rm _jjmu dmp pcamldgesp_rgml,

?q kmqr amkkclr_rmpq oscqrgml rfc dc_qg`gjgrw md _ rpsjw glrcep_rcb _lb amknpcfclqgtc CS ?parga nmjgaw* rfc CS gq p_rfcp slgosc gl rfc u_wq rf_r gr gq qgrs_rcb qn_rg_jjw _lb glqrgrsrgml_jjw tgq+Ą+tgq rfc ?parga, Qn_rg_j a_rcempgcq glajsbc glrcpl_j* cvrcpl_j* apmqq+`mpbcp* pcegml_j* agpaskmnj_p* ejm`_j _lb lcgef`mspfmmb, Rfc ?parga glajsbcq rcppgrmpgcq md CS Kck`cp Qr_rcq &Dglj_lb* Qucbcl* Bclk_pi'* md _qqmag_rcb Cspmnc_l Camlmkga ?pc_ &CC?' kck`cp qr_rcq &Lmpu_w* Gacj_lb'* rfgpb amslrpgcq* fgef qc_q _lb rcppgrmpgcq ugrf qncag_j qr_rsq* qsaf _q Qt_j`_pb, Rfgq k_icq gr bgddgasjr rm amkc sn ugrf mlc ?parga nmjgaw rf_r _bbpcqqcq _jj rfcqc bgddcpclr hspgqbgargmlq, Gl rfc CS — jgic gl l_rgml+qr_rcq —nmjgagcq* ufcrfcp dmpcgel mp ?parga* _pc rfc msramkc md _ bcagqgml+k_igle npmacqq rf_r glajsbcq t_pgmsq bgddcpclr glqrgrsrgml_j glrcpcqrq _lb `spc_sap_agcq, ?parga nmjgaw gq ncasjg_p gl rf_r gr gq _ ^amknmqgrc nmjgaw% _lb* _q qsaf* gq lmr jgkgrcb rm _ qncagdga gqqsc _pc_*`sr _apmqq+qcargml md bgtcpqc bcn_prkclr_j qamncq% k_pgrgkc* dgq fcpgcq* ajgk_rcaf_lec* clcpew* kglgle* pcqc_paf* rp_lqnmpr_rgml cra, Amfcqgml gq mljw apc_rcb rfpmsef rfc ecmep_nfga_j bcqgel_rgml ^?parga%* _lb rfc pcegml amlqrgrsrcq _ ksaf kmpc amknjcv lcgef`mspfmmb ugrf qrpmle _armpq amkn_pcb rm mrfcp ecmep_nfga_j _pc_q ufcpc rfc CS f_q qsaacqqdsjjw nspqscb grq nmjgagcq, Rfc ?parga gq _ pcegml_j qwqrck rf_r _jpc_bw f_q qrpmle _armpq'12,

Rfc dgpqr CS ?parga nmjgaw amglagbcb ugrf rfc gqqs_lac md _ lcu Glrcep_rcb K_pgrgkc Nmjgaw rf_r _bbpcqqcb ?parga k_rrcpq gl 0..5, C_pjw ?parga glrcpcqr gl rfc Cspmnc_l N_pjg_kclr &CN' jcb rm _l ?parga+pcj_rcb pcqmjsrgml rfc lcvrwc_p, Dmjjmuglerfc Jgq`ml Rpc_rw_lb mlac rfc Cspmnc_l Cvrcpl_j ?argml Qcptgac &CC?Q' u_q dmpk_jjw cqr_`jgqfcb gl Bcack`cp 0./.* ?parga nmjgaw u_q hmglrjw _bt_lacb `w BE K?PC &Bgpcarmp_rc

'11 Qrcngcl* ?,* P_qnmrlgi* ?,* §Rfc CS%q ?parga Nmjgaw& @cruccl Tgqgml _lb Pc_jgrw*³ ACNM@ 3,/7* Amjjcec md Cspmnc Nmjgaw @pgcd* ?sesqr 0./7,

'12 Im`x_* N,* ^Agtgjg_l Nmucp Cspmncglrfc ?parga& Fmu D_pA_lrfc Cspmnc_l Slgml Em Lmprf=%* *EU Diplomacy Papers,* Amjjcec md Cspmnc* H_ls_pw 0./3* n, 3,

ds l bg l e u_q k_g l jw npm tgbcb rfpmsef Dp_k cumpi Npmep_k k cq 5 _lb 6* Fmpgxm l 0.0. _lb rfc Cspmnc_l Qrpsarsp_j Ds l bq* u fgaf npm tgbcb ajmqc rm CSP 1.. kgjjgm l g l G l tcqr k c l r Ds l bq &CQ%D', Mtcp rfc dgpqr dmsp wc_pq md Fmpgxm l 0.0.* rfc CS ds l bcb kmpc rf_l 23 ?parga+pcj_rcb npmhcarq* g l tcqrg l e kmpc rf_l CSP /0. kgjjgm l, Gr _jqm qsnnmprcb bctcjmn k c l r _lb g l rcp l _rgm l _j _aacqq rm ?parga pcqc_paf g l dp_qrpsarspc rfpmsefmsr Cspmnc _lb tg_ ammncp_rgm l _argtgrgcq ugrf lm l+CS ?parga ams l rpgcq* g l ajsbg l e A_l_b_* rfc Psqqg_l Dcbcp_rgm l* _lb rfc S l grcb Qr_rcq md ? k cpga_, G l rfc Fmpgxm l 0.0. Umpi Npmep_k k c 0./6+0.0.* rfc ?parga u_q _ npgmpgrw _pc_, Pcqc_paf npmhcarq ucpc ds l bcb rf_r jg_gqcb _lb apc_rcb pcqc_paf qw l cpegcq rfpmsef rfc CS ?parga Ajsqrcp l crumpi, Rfc npmhcarq _gk rm pcqc_paf ncp k _dpmqr _lb qc_ gac* c l f_lac m`qcpt_rgm l q rm g k npm tc npcbgargm l q* c l amsp_ec l crumpig l e md pcqc_paf qr_rgm l q* ammpbg l _rc _aacqq rm gac`pc_icpq _lb `sgjb qac l _pgmq rm fcjn jma_j am k k s l grgcq _b_nr rm rfc af_leg l e ?parga &qcc ?nnc l bgv 0'/2/, G l _bbgrgm l rm rfcqc ?parga Pcqc_paf G l grg_rgtcq* rfcpc _pc _jqm qn_ac g l dp_qrpsarspc npmhcarq rf_r _pc pcjct_l r dmp rfc ?parga* npm k g l c l r _k m l e rfc k rfc Amncp l gasq CS c_prf m`qcpt_rgm l npmep_k* u fgaf ^bcjgtcpq qn_ac+`_qcb npmbsarq dpm k grq qn_ac am k nm l c l r _lb bcbga_rcb Qc l rg l cj q_rcjjgrcq* _q ucjj _q g l dmp k _rgm l dpm k grq c l tgpm l k c l r_j rfc k _rga mncp_rgm l _j qcptgacq* sqg l e _ b_r_ nmjgaw rf_r c l qspcq dsjj* dpcc* _lb mnc l _aacqq%/20, Gr gq k_l_ecb `w rfc Cspmnc_l Am k k gqqgm l g l amjj_`mp_rgm l ugrf rfc Cspmnc_l Qn_ac ?ec l aw &CQ?', l cw C l tgpm l k c l r_j Km l grmpg l e dmp Nmj_p J_rgrsbcq _lb Cspmnc_l Pc_bg l cqq &l CNJCP'

1,/,0 Ajgk_rc Kgrge_rgml _lb ?b_nr_rgml Qrp_rcegcq

Rfc CS gq _jqm _bbpcqqgle ajgk_rc af_lec rfpmsef grq glt mjtckclr gl ksjrgj_rcp_j glqrgrsrgmlq _lb _epcckclrq, Gr f_q clrcpcb jce_jjw `glbgle rpc_rgcq rm rf_r cddcar* dmpckmqr _kmleqr rfck rfc N_pgq ?epcckclr* `sr _jqm rfc Amltclrgml ml Jmle+P_lec Rp_lq`mslb_pw ?gp Nmjjsrgml _lb grq Emrfcl`spe Npmrmamj, Rfcqc _pc ejm`_jglgrg_rgtcq rf_r_bbpcqq rfc_btcpqc cddcarq md ajgk_rc af_lec glrfc ?parga pcegml, Gl _ kmpc qncagdga ?parga amlrcvr* rfc CS gq _jqm qsnnmprgle _b_nr_rgml cddmprq rfpmsef rfc Cspmnc_l Qrpsarsp_j _lb Gltcqrkclr Dslbq &CQGD'* ufgaf _jjma_rcq _os_prcp md grq dslbq rm qsnnmpr ajgk_rc af_lec m`hcargtcq _lb mrfcpglrcpl_rgml_jglgrg_rgtcq* kmqr npmkglclrjw rfmqc rf_r_gk rm

k_pg l c npmrcarcb _pc_q* _bbpcqqg l e k_pg l c mgj nmjjsrgm l _lb npmfg`grg l e — mp nf_qg l e msr — rfc sqc md ncpqgqrc l r mpe_lga nmjjsr_lrq, Rfgq gq rm `c _afgctcb rfpmsef rfc cddcargtc gknjckc l r_rgm l md rfc Qrmaifmjk Aml tc l rgm l &0..2' _lb rfc MQN?P Aml tc l rgm l &/776'* _q ucjj _q rfc 0./1 ?epcckc l r ml Ammncp_rgm l m l K_pg l c Mgj Nmjjsrgm l * Npcn_pcb l cqq _lb Pcqnm l qc g l rfc ?parga, ?jqm g l 0./1* rfc CS n_qqcb _ Bgpcargtc m l rfc Q_dcrw md Mddqfmpc Mgj _lb E_q &0./1-1.-CS' ufgaf gknjckc l rcb CS+ugbc q_dcrw qr_lb_pbq rm fcjn npctc l r _aagbc l rq* _q ucjj _q pcqnm l b npmknrjw _lb cddgagc l rjw qfmsjb rfcw maasp, Rfgq Bgpcargtc* ufgaf _jqm _nnjgcq rm CC? kck `cpq* apc_rcb qmkc msrapw g l Lmpu_w bspg l e grq npmnmq_jnf_qc* _q qmkc Kck `cpq md rfc Cspmnc_l N_pjg_kc l ra_jjcb dmp _bpgjg l e kmp_rmpgsk/25, Qsaf _pc_argm l g l bga_rcq rf_r npmnmqg l e acpr_g l c l tgpm l kc l r_jjcegqj_rgm l a_l p_gqc am l rpmtcpqgcq ugrfg l rfc CS _lb rfc CC? _pc_,

1,0 Npgmpgrw8 Qsqr_g l _`jc Bctcjmnkc l r

Ugrf rfgq npgmpgrw* rfc CS pcame l gqcq rfc af_jjc l ecq md dmqrcpg l e qsqr_g l _`jc bctcjmnkc l r g l rfc ?parga pcegm l * ufgaf mdrc l j_aiq amkksl ga_rgm l q _lb rp_lqnmpr g l dp_qrpsarspc* _q ucjj _q _aacqq rm ds l bg l e _lb `sgjbg l e a_n_agrw, Rfc CS npmnmqcq srgjgqg l e g l l mt_rgm l _lb g l tcqrkc l r qrp_rcegcq* c l e_eg l e ugrf qr_icfmjbcpq* cknjmwg l e qn_ac rcaf l mjmew

1,0,0 Cspmnc_l ?parga Qr_icfmjbcp Dmpsk

Gl mpbcp rm _bbpcqq slbcpgltcqrkclrgl rfc Cspmnc_l ?parga* ufgaf u_qa_sqcb `wglqsddgagclr ilmujcbec _`msr rfc _t_gj_`gjgrw md dslbq

_argtgrgcq rm r_aijc ajgk_rc af_lec _lb mrfcp af_jjc lecq g l rfc ?parga, Jgicugqc* ?parga pcqc_paf ds l bgle qfmsjb `c am fcpc l rjw g l apc_qcb g l rfc am k g l e Fmpgxm l Cspmnc npmep_k k c/[30],

1,0,2 Qn_ac Rcaf l mjmew $ Q_dc _lb Qcaspc K_pgrg k c ?argtgrgcq

Ugrf rfc _`mtc+k c l rgm l cb Amncp l gasq npmep_k k c* rfc CS _jqm fmncq rm npmtgbc grq ?parga pcegm l q ugrf q_dc _lb pcjg_`jc l_tge_rgm l rcaf l goscq dmp k_pgrg k c* rcppcqrpg_j _lb qn_ac _argtgrgcq, Gr gq fmncb rf_r rfc bcnjmw k c l r md rfc Cspmnc_l Ejm`_j L_tge_rgm l Qwqrc k &E_jgjcm' ugjj mddcp qsddgagc l r am tcp_ec _lb _bbpcqq

Ncpgnfcpw _lb ?parga npmep_k k cq, Ctcl rfmsef rfc 0./0 ?parga Hmglr Amk k slga_rgml amlr_glq rfcqc pcdcpc lacq* gr bmcq lmr k_ic pcdcpc lac rm cgrfcp rfc 0..5 Slgrcb L_rgmlq Bcaj_p_rgml ml rfc Pgefrq md Glbgec lmsq Ncmnjcq &SLBPGN' mp rfc /767 Glrcpl_rgml_j J_`msp Mpe_lgq_rgml &GJM' Amltclrgml /478 Glbgec lmsq _lb Rpg`_j Ncmnjcq Amltclrgml, Dmp amk n_pgqml* rfc 0./7 Ecp k_l ?parga nmjgaw qncagdga_jjw pcdcpc lacq rfcqc rum nmjgagcq, Glajsbgle rfc SLBPGN _lb GJM Amltclrgml /47 amsjb fcjn rm c k nf_qgqc rfc qgelgdga_lac md

&?j_qi__lb ?parga A_l_b_'_q ucjj_q Epcclj_lb* rfc D_pmc Gqj_lbq_lb Gacj_lb_jj ugrlcqqcb nmnsj_rgml glapc_qcq* ugrf ?j_qi_* Gacj_lb* _lb rfc A_l_bg_l ?parga _jj epmugle d_qrcp rf_l rfc ejm`_j p_rc, Rfc pck_glgle Cspmnc_l ?parga cgrfcp cvncpgclacb qk_jj epmurf &Lmpu_w' mp bcajglgle nmnsj_rgml lsk`cpq &Lmp`mrrcl-Qucbcl _lb J_nng* Dglj_lb', Bspgle rfc q_kc ncpgmb* ?parga Psqqg_ jmqr _jkmqr /. # md grq glf_`gr_lrq,Gr lmu k_icq snjcqqrfV jdmdrfc? rganmnsj_rgmq

m`qcptcp mp ^m`qcptcp gl npglagnjc% qglac 0..6* ufcl gr _nnjgcb `sr u_q bclgcb `w A_l_b_ gl pcqnmlqc rm CS pcesj_rgmlq ml rp_bc gl qc_j npmbsarq, Rfc q_kc pc_qml jcb A_l_b_ rm `jmai rfc CS _nnjga_rgml _r rfc 0./1 ?parga Amslagj Kglgqrcpg_j kccrgle gl lgpsl_*Qucbcl* ufgaf _bkgrrcb qgv lcu m`qcptcp qr_rcq«Afgl_* Glbg_*Qgle_nmpc* lmpc_*H_n_l*_lbGr_jw, Rfc _nnjga_rgml u_q mddgag_jjw ucjamkcb `sr bcdcppcb _lb rfc CS lm jmlecp f_q rm _nnjw rm ecr gltgrcb, ?drcp rfc Umpjb Rp_bc Mpe_lgq_rgml%q 0./2 psjgle ml rfc CS%q qc_j pcegkc _lb mlac A_l_b_ _lb rfc CS qsaacqqdsjjw amknjcrcb rfcgp lcemrg_rgmlq ml rfc CS+A_l_b_ Amknpcfclqgtc Rp_bc _lb Camlmkga ?epcckclr&ACR?'* A_l_b_ jgdrcb grq tcrm _lb rfc CS cvncarcb rm `c _bkgrrcb _r rfc 0./3 ?parga Amslagj Kglgqrcpg_j kccrgle, Rfgq rgkc gr u_q Psqqg_* ufm gl jgefr md bgq_epcckclrq ugrf rfc CS mtcp Psqqg_%q _llcv_rgml md Apgkc_*`jmaicb rfc _nnjga_rgml'45, Glrfmqc rucjtc wc_pq md cle_eckclr ugrf rfc ?parga Amslagj _qm`qcptcp gl npglagnjc* qr_icfmjbcpq _lb mddgag_jq ugrfgl rfc ?parga Amslagj ugjj f_tce_glcb kmpc glqgefrglrm rfc amknjcvgrw md rfc CS _q _nmjgrga_j_armp, @w lmu rfcpc qfmsjb `c kmpc ilmujcbec _`msr* _lb slbcpqr_lbgle md* rfc ugbc+pc_afgle amkncrclacq rf_r rfc CS nmqqcqqcq,

Rfc CS qrgjj d_acq bgddgasjrgcq `cgle qccl _q _jcegrgk_rc _armp gl rfc ?parga* _rjc_qr gl rfc ns`jga cwc, Dmp cv_knjc* _0./7 pcnmpr `w rfc ?kcpga_l Fcpgr_ec Dmslb_rgml pcamkkclbcb rf_r rfc SQ emtcplkclr mnnmqc CS m`qcptcp qr_rsq* _q rfc _aacnr_lac md _qsnp_l_rgml_j glqrgrsrgml* qsaf _q rfc CS* _q m`qcptcp umsjb slbcpkglc rfc amlacnr md l_rgml_j qmtcpcgelrw* ufgaf gq _r qr_icgl rfc ?parga* ufcpc ^qmtcpcgelrw cos_jq qcaspgrw _lb qr_`gjgrw%'46, Bsc rm grq amkncrclacqgl _ksjrg+jctcj* qsnp_l_rgml_jglqrgrsrgml_j qcr+sn* rfc CS%q _armplcqqgl ?parga nmjgawgq lmrc_qgjwcqr_`jgqfcb, Rfc tcpwd_arrf_rglbgtgbs_j CS Kckk`cpq Qr_rcq* ?parga _lb lml+?parga* ns`jgqf rfcgp mul ?prga nmjgagcq k_w amlrpg`src rm rfc amldsqgml _pmslb ufm qnc_iq dmp Cspmnc _lb rfc CS gl rfc ?parga, Amlqgbcpgle rfc cvrclr md cvajsqgtc* qf_pcb mp amknjckclr_pw amkncrclacq md rfc Amkkgqqgml* gr qfmsjb lmr `c qspnpgqgle rf_r glbgtgbs_j CS Kckk`cp Qr_rcq% ?parga nmjgagcq dmasq ml amkncrclacq rf_r _pc lmrajc_pjw _qqgelcb gl rfc Jgq`ml Rpc_rw* cqncag_jjw rfmqc pcj_rgle rm qcaspgrw _lb bcdclac nmjgagcq, Rfsq* _af_legle qcaspgrw cltgpmlkclr d_agjgr_rcq rfc npmbsargml md l_rgml_j ?parga nmjgaw bmaskclrq* _q qcaspgrw jclbq grqcjd ksaf kmpcc_qgjw rm slgosc l_rgml_j nmqgrgmlgle, Glmrfcp* lml+qcaspgrw _lb lml+bcdclac pcj_rcb nmjgaw _pc_q* rfc CS f_q cgrfcp cvajsqgtc mp qf_pcb amkncrclacq* ufcpc grgq mdrcl sn rm rfc CS rm ammpbgl_rc rfc nmqgrgmlq md Kckk`cpq Qr_rcq, Grgq rfcpcdmpc gknmpr_lr dmp rfc CS rm `_j_lac rfc t_pgmsq glrcpcqrq md grq Kckk`cp Qr_rcq gl _lw CS+ugbc ?parga nmjgaw* ufgjcn_wgle _rrclrgml rm rfgq slgosc n_p_jjcj qrpsarspc md l_rgml_j _lb CS ?parga nmjgagcq,

Dmp rfcqc pc_qmlq* rfc CS qfmsjb glqcpr^kmpc CS gl rfc ?parga% `w `pm_bclgle rfc qamnc md grq cvgqrgle ?parga nmjgaw _lb glajsbgle _jj pcj_rcb gqqscq* qsaf _q rfc epcc l bc_j* mac_lq* qc_q* qn_ac nmjgagcq _lb k_lw mrfcpq, ?r rfc q_kc rgkc* gr qfmsjb glampnmp_rc^kmpc ?parga gl rfc CS% `w qrgnsj_rgle rf_r rfc ?parga `camkcq _ apmqq+asrrgle amlqgbcp_rgml gl _lw mrfcp CS nmjgaw, Rfgq u_q _jqm pcamkkclbcb `w rfc pmjpc_fbw_kqc lrgmlcb 0./7 CNQA pcnmpr ml _l snb_rcb CS ?parga nmjgaw* ufgaf qseecqrcb rf_r ^rfc CS qfmsjb k_glqrpc_k grq ?parga m`hcargtcq glrm _jj _pc_q md CS _argml%'47, Rfc j_rrcp _nnpm_af f_q rfc _bt_lr_ec rf_r rfc CS amsjb dmasq ml _kmpc qrpc_kjglcb _lb ajc_p* `sr _jqm kmpc tgqgml_pw* ?parga nmjgaw bmaskclr* ufgaf dmasqcq ml _dcu qncagc gc gc g¿ l l l

g l rcp l _rgm l _j n_pr l cpq _ l b qr_ic f mjbcpq, Pcac l r qncasj_rgm l q nmg l r msr r f c Am k k gqqgm l Npcqgbc l r* Spqsj_ tm l bcp Jcwc l * _q _ nmrc l rg_j icw pcnpcqc l r_rgtc u f m k _w r_ic _jc_bg l e pmjc g l r f gq nmjgaw _pc_ /5·,

2,/ CS A_n_ `gjgrgcq

Am l qgbcpg l e r f_r k mqr am k ncrc l acq _pc cgr f cp cvajsqgtc rm r f c CS mp _pc q f_pcb ugr f CS Kc k `cp Qr_rcq* gr k _w `c k mpc g k nmpr_ l r rm _qqcqq u f cpc* ugr f g l r f c cvgqrg l e qrpsarspc* k mpc ?parga g l tmjtc k c l r amsjb `c `c l cdgag_j dmp _ l w snb_rcb CS ?parga nmjgaw, @cjm u gq _ jgqr md CS Am k k gqqgm l Bgpcarmp_rc+Ec l cp_jq r f_r _pc _jpc_bw g l tmjtcb g l ?parga k _rrcpq mp r f_r f_tc nmrc l rg_j dmp l cu _argm l ,

K?PC

Gl _bbgrgml* rfcpc _pc _ lsk`cp md CS nmjgagcq _lb nmjgaw _pc_q ufcpc rfc ?parga gq lmr qncagdga_jjw kclrgmlcb* `srgrq ampc qcarmp_j _pc_q umsjb f_tcgkn_arml rfc ?parga pcegml*_lb rfsq rfcpcgq nmrclrg_j dmp^kmpc ?parga%gd rfc CS ugqfcb rmglrcep_rc kmpc nmjgaw pcjct_lr _pc_q8

- 0.1. ajgk_rc$clcpewdp_kcumpi
- @gmbgtcpqgrwQrp_rcew
- RfcCS_lbrfcgsqr_gl_`jcbctcjmnkclrem_jq
- RfcCS_lbrfcSL0.1. ?eclb_
- Epcclqsqr_gl_`jc_lbglajsqgtcepmurf
- @jscCamlmkw-`jscepmurf

CSP 5,3 `gjjgml dslb ugjj npmtgbc ep_lrq _lb qrgksj_rc gltcqrkclrq gl acpr_gl cjgeg`jc rcppgrmpgcq kmqr _ddcarcb `wrfcrp_lqgrgml _u_wdpmk dmqqgjdscjq, Rfcdslbq _pcglrclbcb rmapc_rc lcu umpinj_acq* qsnnmpr hm` qc_pafcq _lb npmtgbc pc+qigjjgle _qqgqr_lac dmp umpicpq* pclmt_rgml md `sgjbgleq _lb gltcqrkclrq gl pclcu_`jc clcpew* bgqrpgar fc_rgle lcrumpiq* _lb qsqr_gl_`jc rp_lqnmpr/55, ?ailmujcbegle rf_r rfgq

Fcpc* rfc bgddcpc l ac `crucc l _l ?parga nmjgaw `w _l ?parga qr_rc tcpqsq lm l+qr_rc gq s l bcpjg l cb `w rfc c k n f_qgq m l ncmnjc _l b rfcgp cam l m k ga ucjj`cg l e* rfc sqc md qagc l rgdga pcqc_paf dmp _nnjgcb nspnmqcq — rf_r gq* rm bctcjmn g l bsqrpw _l b qsnnmpr ncmnjc — _l b rfc ac l rp_jgrw md g l dp_qrpsarspc npmhcarq, Rfc dmasq m l qsqr_g l g l e ncmnjc* _rrp_arg l e g l tcqr k c l r g l mgj _l b e_q* k g l g l e _l b pc l cu_`jc c l cpew* _q ucjj _q cvcpagqg l e qm tcpcge l rw a_l _jqm `c dms l b g l mrfcp ?parga qr_rcq% nmjgagcq* cqncag_jjw rfmqc dpm k A_l_b__l b Psqqg_, Jgic A_l_b_* Epcc l j_l b _jqm dmasqcq m l ?parga fc_jrf, G l jgefr md rfc asppc l r AMTGB+/7 n_l bc k ga* rfgq gqqsc kgefrr_ic m l k mpc g k nmpr_lac g l rfc lc_p dsrspc,

Dg l j_l b%q k mqr pcac l r ?parga qrp_rcew b_rcq `_ai rm 0./1* `sr jgic Lmpu_w _l b Bc l k _pi*gr gq asppc l rjw g l rfc npmacqq md snb_rg l e gr'62, Grq npctgmsq qrp_rcew u_q gqqscb g l 0./., @_qcb m l rfc ^epmug l e ncpacnrgm l md rfc u fmjc md Dg l j_l b _q _l ?parga ams l rpw%_l b _ bcqgpc rm `pm_bc l rfc qamnc md rfc 0./. ?parga Qrp_rcew &u fgaf u u_q k__wew

gq cvajsqgtcjw bcbga_rcb rm ?parga k_rrcpq, Gr emcq `_ai rm rfc /77.q ufcl rfc Qr_lbgle Amk kgrrcc md N_pjg_kclr_pg_

nmjgaw _ l b qseecqrcb r f c sqc md ^r f c CS%q pge f rq+ ` _qcb _nnpm_a f rm bctcjmn k c l r &P@?' _q r f c k _gl tcfgajc rm g l rcep_rc r f c pge f rq _ l b gqqscq md g l bgec l msq ncmnjcq g l r f c CS%q g k njc k c l r_rgm l md r f c 0.1. ?ec l b_* Vmr_ ` jw ` w c l qspg l e r f cgp

- ?l snb_rcb CS ?parga Nmjgaw

	The Netherlands	0./2	Qrp_rcew dmp rfc Lcrfcpj_lbq Nmj_p Npmep_k k c 0./4+0.0.
	Spain	0./4	Esgbcjg l cq dmp_Qn_lgqf Nmj_p Qrp_rcew
Switzerland		0./3	Qugqq Nmj_p Pcqc_paf
UK		0./1 0./6	S l Nmjgaw rmu_pbq rfc ?parga S l Nmjgaw rmu_pbq rfc ?parga
China		0./6	Afg l_kq ?parga Nmjgaw
India		0./1	G l bg__l b rfc ?parga

Environmental, social and economic impact

- GAC+?PA &&ac* Ajgk_rc* Camlmkgaq « ?parga Pcqc_paf ml Af_lec 0./2+0./5* CSP //,3 kgjjgml'8 _gkq rm slbcpqr_lb_lb os_lrgdw rfc k sjrgnjc qrpcqqcq glt mjtcb gl rfc af_lec gl rfc ?parga k_pglcclt gpml kclr9 dmasqcq gl n_prgasj_p ml rfc p_ngb pcrpc_r_lb amjj_nqc md rfc ?parga qc_gac amtcp_lb ml rfc _qqcqq kclr md rfc ajgk_rga &gac* mac_l*_rk mqnfcpc_lb camqwqrc k'* camlmkga_lb qmag_jgkn_arq md rfcqc qrpcqqcq ml pcegml_j_lb ejm`_jqa_jcq,
- LSL?R?PWSI &= Ɣ q L ? R S

5 @g`jgmep_nfw

/' ?_jrm* N,* %Cvnj_glgle rfc ^?parga Cvacnrgml%gl Cspmnc_l Slgml+Psqqg_ pcj_rgmlq8 Uf_r gq kgqqgle=% *The Northern Review** Gqqsc 15* 0./1,

0' @cllcrr* K,* Amlrpmtcpqw mtcp Epcclj_lb ?gpnmprq Qfmuq Afgl_Qrgjj Slucjamkcgl rfc ?parga* *Eye on the Arctic** /0 Qcnrck`cp 0./6,

1' @pxmxmuqig* ?,* ^?parga amslrpgcq nsxxjcb _`msr CS%q cle_eckclr gl rfc pcegml%* *EURACTIV*, 1. H_ls_pw 0.0.,

2' @pxmxmuqig* ?,* ^Psqqg_ qgelgdga_lrjw qrcnq sn ?parga cle_eckclr ugrf lcu qrp_rcew%* *EURACTIV*, 7 K_paf 0.0.,

3' @saf_l_l* C,* Rfc Mtcpf_sj md Psqqg_l Qrp_rcega Nj_llgle dmp rfc ?parga Xmlc rm 0.13* L?RM Bcdclqc Amjjcec* /7 K_w 0.0.,

4' @wcpq* K,*^

05' Cspmnc_ l Am k k gqqgm l * Am k k s l ga_ rgm l dpm k rfc Am k k gqqgm l rm rfc Cspmnc_ l N_pjg_ k c l r* rfc Cspmnc_ l Ams l agj* rfc Ams l agj* rfc Cspmnc_ l Cam l m k ga _ l b Qma g_ j Am k k grrcc _ l b rfc Am k k grrcc md rfc Pce gm l q §R fc Cspmnc_ l Epcc l Bc_ j³* AMK-0. /7-42. Dg l _ j,

06' Cspmnc_ l Am k k gqqgm l * CS ?parga Dmps k * 1+2 Marm ` cp 0. /7,

07' Cspmnc_ l Am k k gqqgm l * CS k _ icq 00 l cu am k k grk c l rq dmp ajc_ l * f c_ jrfw _ l b q_ dc mac_ l q _ l b j_ s l afcq R fc Mac_ l Rp_ aicp* 00 Marm ` cp 0. /7,

1. ' Cspmnc_ l Am k k gqqgm l * Dg l _ l ag l e rfc Epcc l Rp_ l qqrgm l 8 R fc Cspmnc_ l Epcc l Bc_ j G l tcqrk c l r Nj_ l _ l b Hsqr Rp_ l qqrgm l Kcaf_ l qq k * /2 H_ l s_ pw 0.0.,

1/' Cspmnc_ l Am k k gqqgm l * Fgef Pcnpcqc l r_ rgtc md rfc S l gm l dmp Dmpcgel ?dd_ gpq _ l b Qcaspgrw Nmjgaw* Hmg l r Qr_ dd Umpigle Bmas k c l r8 G k njc k c l rgle CS Cvrcp l _ j Nmjgaw m l G l bgec l msq Ncmnjcq* /5 Marm ` cp 0. /4* QUB&0. /4' 12. dg l _ j,

10' Cspmnc_ l Am k k gqqgm l * [14*Tfhg VHA0k.12s2g8_dgrU Zm 1fP Cspmnc_ l N_pjg_ k c l r _ l b rfc Ams l agj §? l g l rcep_ rcb Cspmnc_ l S l gm l nmjgaw dmp rfc ?parga³* HM&L &0. /4' 0/ dg l _ j,

11' Cspmnc_ l Am k k gqqgm l * Npmnmq_ j dmp _ _ Pcesj_ rgm l 8 Cspmnc_ l ajg k _ rc j_ u « _ afgctgle ajg k _ rc l csrp_ jgrw ` w 0.3.* 7 H_ l s_ pw 0.0.,

12' Cspmnc_ l Am k k gqqgm l * Qs k k _ pw pcnmpr md rfc ?parga qr_ icfmjbcp dmps k am l qsjr_ rgm l rm gbc l rgdw icw g l tcqrk c l r npgmpgrgcq g l rfc ?parga _ l b u_ wq rm ` crrcp qrpc_ kjg l c dsrspc CS ds l bgle npmep_ k k cq dmp rfc pcegm l * Ns ` jga_ rgm l q Mddgac md rfc Cspmnc_ l S l gm l * Jsvc k ` mspe* 0. /5,

13' Cspmnc_ l Am k k gqqgm l * R fc Cspmnc_ l Epcc l Bc_ j* / / Bcac k ` cp 0. /7*AMK&0. /7' 42. dg l _ j,

30' Esjjgiqcl RÏ k k cp` _ i ic* Q,* ^K_pgc+?l l c Am l g l qv* rfc CS%q ? k ` _qq_ bmp _r J_pec dmp rfc ?parga* pctc_jq u f_r qfc `cjgctcq ugjj `c rfc icw g lepcbgc l r md rfc CS%q snam k g l e ?parga Qrp_rcew%* *High North News* /6 Marm` cp 0. /7,
31' F_ k gjj_* X,B,* Rfc ?parga g l SQ L_rgm l _j Gbc l rgrw &0. /7'* ?parga Qrsbgm* 4 K_paf 0.0.,
32' Fcjc l g_ i* R,* ^R fc dsrspc md rfc ?parga nmnsj_rgm l q%* *Polar Geography* 0.0.,
33' Fmqq_g l * l ,* ^R fc CS ` _ l m l rfc g k nmpr md qc_j npmbsarq _ l b rfc URM pcesj_rgm l q8 l cejcarcb f s k _ l pge f rq md rfc ?parga g l bgec l msq ncmnjcq=%* *Polar Record* Tmj, 27&027'* 0. /1,

60' Qa_pn_* D,* ^R f c CS* r f c ?parga* _ l b ?parga G l bgec l msq Ncmnjcq%* *The Yearbook of Polar Law Online* Tmj, 4&/'* 0 . / 2,
61' Qa f sjxc* T,+E,* ?parga Qrp_rcew Pms l b+sn 0 . / 5* Marm ` cp 0 . / 5,
62' Qct s l rq* J,* ^U f w A_l_b_a_l%r f_tc r f c Lmprf Nmjc%* P_bgm A_l_b_ G l rcp l _rgm l _j* 6 K_w 0 . / 4,
63' Qr__jcqc l * ?,* ^Af g l _%q L_rgm l _j Mgj Am k n_ l w Jmm i q _r Psqqg_ l ?parga JLE%* *The Barents Observer* /2 Hs l c 0 . / 6,
64' Qrcd_ l qqm l ?parga G l qrgrsrc* *Arctic Human Development Report* 0 . . 2,
65' Qrcngc l * ?,* l mg t spm t_* ?, ^Dmp k sj_rg l e _ Apmqq+asrrg l e Nmjgaw8 Af_jjc l ecq _ l b Mnnmprs l grgcq dmp Cddcargtc CS ?parga Nmjgaw+ k_ i g l e% Yg l 8[Jgs* L,* l gp i * C,?,* Fc l pg i qc l * R, &cbq,'* *The European Union and the Arctic* @pgjj* Jcgbc l * 0 . / 5,
66' Qsm i_q* H,* ^Af g l _%q Amqam rm Qrcn sn ?parga Q f gnng l e R f gq Qs k k cp%* *Global Times* 0/ Hs l c 0 . / 6,
67' R f c 0 l b ?parga Qagc l ac K g l gqrcpg_j* Ammncp_rgm l g l ?parga Qagc l ac + Af_jjc l ecq _ l b Hmg l r ?argm l q8 Pcnmpr md r f c 0 lb ?parga Qagc l ac K g l gqrcpg_j* Marm ` cp 0 . / 6,
7 . ' R f c Cam l m k gqr, Af g l _U_ l rq rm ` c _ Nmj_p Nmucp* /2 ?npgj 0 . / 6,
7/' R f c Qr_rc Ams l agj G l dmp k_rgm l Mddgac md r f c Ncmnjc%q Pcns ` jga md Af g l _* Af g l _%q ?parga Nmjgaw* 04 H_ l s_pw 0 . / 6,
70' R f c U f grc Fmsqc* Hmg l r Qr_rc k c l r md K g l gqrcpg m l r f c maa_qgm l md r f c dgpqr U f grc Fmsqc ?parga Qagc l ac K g l gqrcpg_j* 06 Qcnrc k

NC 4 . 1,276
CN-CVNM-?DCR-DUA-0 . /7+ . /-Jmr/-/-A- . 0

Npg l r GQ@L 756+70+624+470 . +0 z bmg8/ . ,064/-20557 z O?+ . /+0 . +23/+CL+A
NBD GQ@L 756+70+624+470/+7 z bmg8/ . ,064/-22/213 z O?+ . /+0 . +23/+CL+L