N_^_jZevgh_]hkm^Zjkl_ggh_ [x^`_lgh_ h[jZah\Zl
mqj_`^_gb_ \ukr_]h h[jZah\Zgby
©;mjylkdZy]hkm^Zjkl_ggZy k_evkdhohayckl_ggZy ZdZ^_f

NZdmevl_l <_l_jbgZjghc f_^bpbgu

© K H = E : K H < : G Hª
AZ_^mxsbc \uimkdZxs_c
<_l_jbgZjghc f_^bpbgu wdki
fbdjh[bheh]by b iZlhfhjr

mq kl

© M L < ? J @ > ? G Hª
>_dZg
<_l_jbgZjghc f_^bpbgu

Bgnhjf Zpbhjg Zah\Zl_evgu_ kbkl_fu WBHK		
GZbf_gh\Zgb_ WBHK b	>hklmi	<b^u mq_[guo aZgylbc b j bkihevam_lky ^ZggZy
1	2	3
HnbpbZevguc kZcl ZdZ^_f	http://bgsha.ru/	AZgylby e_dpbhggh]h lbiZ lbiZ kZfhklhyl_evgZy jZ[h
Ebqguc dZ[bg_l	http://lk.bgsha.ru/	AZgylby e_dpbhggh]h lbiZ lbiZ kZfhklhyl_evgZy jZ[h
:K >_dZgZl	\ ehdZevghc ZdZ^_lbfbb	-
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BK ©leZgu ª	\ ehdZevghc k_lb ZdZ^_fbb	-
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We_dljhggZy [b[ebhl_dZ ;=	http:/elib.bgsha.ru/	AZgylby e_dpbhggh]h lbiZ lbiZ kZfhklhyl_evgZy jZ[h

D:>JH<HH;?KI?Q?GB? MQ?;GH=H IJHP?KK: IH >BKPBIEBG? FH>MEY		
NBH ij_ih^Z\Zl_ey	Mjh_gv h[jZah\Zgby Ki_pb d\ZebnbdZpby \ khhl_lkl\bb Ijhn_kkbhgZevgZy i_j_ih^]	Mq_gZy kl_i_gv mq_gl
1	2	3
;Zlhfmgdm_\Z >hj`h`Zih\gZ	<ukr__ h[jZah\Zgb_ ;bheh]by	d [g ^hp_gl

H;?KI?Q?GB? MQ?;GH=H IJHP?KK: IH >BKPBIEBG? FH>MEX >EY BG<:E H=J:GBQ?GGUFBF <HAFH@GHKLYFB A>HJH<VY
Hj]ZgbaZpbhjZ\h]bq_kdbo_h]hZ]h]bq_kdh_ khijh\h`^_gb_ h[mqZxsboky bg\Zeb^h\ b e \hafh`ghklyfb a^hjh\vy hkms_kl\ey_lky gZ hkgh\Zgbb khhl_lkl\mxs_c-f_dbdhg^Zpbb \ i_^Z]h]bq_kdhc dhfbkkbb beb bg^b\bj^mZevghZpbjhjgZ\eb^Z :dZ^_fby ih aZy\e_gbx ki_pbZevgu_ mkeh\by ^ey ihemq_gby \ukr_]h h[jZah\Zgby bg\Zeb^Zfb b ebpZf k h]jZg -bkihevah\Zgb_ ki_pbZebabjh\Zgguo Z^ZilbjhZgguebgjZfh^qbe_ighjZffhlhkbhi[mq_gby \dexqZy gZebqb_ Zevl_jgZlb\ghc _jkbb hnbpbZevgh]h kZclZ hj]ZgbaZpbb \ k_lb ©Bg -bkihevah\Zgb_ ki_pbZevguo mq_[gbdh\ mq_[gfu dh^kdm[kdbo ^fjZ]hjbZmeZ\ydjgZdZygu_ nhjfZlu i_qZlguo fZl_jbZeh\ djmiguc rjbnl beb Zm^bhnZceu -bkihevah\Zgb_ ki_pbZevguo l_ogbq_kdbo kj_^kl\ h[mq_gby fmevlbf_^bcgh_ h[hjm^h dhee_dlb\gh]h b bg^b\b^mZevgh]h ihevah\Zgby \dexqZy mklZgh\dm fhdblhjh\ k \hafh`ghklvx ljZgkeypbb km[lbljh\ h[_ki_q_gb_ gZ^e_`Zsbfb a\mdh\ufb \hkijhba_^_gbyfb bgnhjfZpbb -ij_^hklZ\e_gb_ mkem] Zkkbkl_glZ ijb g_h[oh^bfhklb hdZau\Zxs_]h h[mqZxsbfky g_ kmj^hi_j_\h^qbdh\mj^lbine_jh\h^qbdh\ -ijh_^_gb_]jmiih\uo b bg^b\b^mZevguo dhjj_dpbhgguo aZgylbc ^ey jZatykg_gby hl^ fh^mey -ijh_^_gb_ ijhp_^mju hp_gb\Zgby j_amevlZlh\ h[mq_gby \hafh`gh k mq_[gfu dh^kdm[kdbo ^fjZ]hjbZmeZ\ydjgZdZygu_ ibkvf_ggh gZ dhfivxl_j_ \ nhjf_ l_klbjh\Zgby b l i ijb bkihevah\Zgbb ^hklmighc nhj kj_^kl\ b hl_lh\ gZ aZ^Zgby \ i_qZlghc nhjf_ m_ebq_gguf rjbnlhf \ nhjf_ Zm^bhaZ aZ^Zgby aZqblu\Zxlky Zkkbkl_glhf aZ^Zgby ij_^hklZ\eyxlky k bkihevah\Zgb_f kmj^hi bkihevah\Zgb_f ^hihegbl_evgh]h \j_f_gb ^ey ih^]hlh\db hl_lZ -h[_ki_q_gb_ [_kij_iylkl_ggh]h ^hklmiZ h[mqZxsbfky \ mq_[gu_ ihf_s_hjbZgbmZebbguZ ij_[u\Zgby \ mdZaZgguo ihf_s_gbyo gZebqb_ iZg^mkh\ ihjmqg_c jZkrbj_gguo ^_jg -h[_ki_q_gb_ khq_lZgby hgeZcg b hneZcg l_ogheh]bc Z lZd`_ bg^b\b^mZevgukkb dh hkms_kl\ey_fhf k bkihevah\Zgb_f ^bklZgpbhgguo h[jZah\Zl_evguo l_ogheh]bc -b ^jm]b_ mkeh\by [_a dhlhjuo g_\hafh`gh beb aZljm^g_gh hk\h_gb_ HIHI <H < p_eyo j_ZebaZpbb HIHI <H \ ZdZ^_fbb h[hjm^h\ZgZ [_a[Zjv_jgZy kZ_jmr_gbyfb aZjmr_gbyfb kemoZ k gZjmr_gbyfb kemoZ ZiiZjZlZ L_jjblhjby khhl_lkl\m_l mkeh\byf [_kij_iylkl_ggh]h [_ahiZkgh]h b m^h[gh] h]jZgbq_ggufb \hafh`ghklyfb a^hjh\vyhjhmk^ \ mq_[guc h[hjm^h\Zg iZg^mkZfb kl_deZ \oh^guo ^_j_c h[hagZq_gu ki_pbZevgufb agZdZfb ^ey Khljm^gbdb hojZgu agZxl ihjy^hd ^_ckl\bc ijb ijb[ulbb \ ZdZ^_fbx ebpZ k h]jZgbq_gg lhe_gZgZy khpbhdmevlmjgZy kj_^Z hkms_kl\ey_lky g_h[oh^bfh_ khijh\h`^_gb_ h[jZah ijb g_h[oh^bfhklb ij_^hklZ\ey_lky \hehgl_jkdZy ihfhsv h[mqZxsbfky bg\Zeb^Zf b ebpZ a^hjh\vy

N_^_jZevgh_]hkm^Zjkl_ggh_ [x^`_lgh_ h[jZah\Zl
mqj_`^_gb_ \ukr_]h h[jZah\Zgby
©;mjylkdZy]hkm^Zjkl_ggZy k_evkdhohayckl_ggZy ZdZ^_f

NZdmevl_l <_l_jbgZjghc f_^bpbgu

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AZ_^mxsbc \uimkdZxs_c
<_l_jbgZkZhblZjgZy wdki
fbdjh[bheh]by b iZlhfhjr

© M L < ? J @ > ? G Hª

.&O2 : .&O2 .&O
60. &U 62 .0Q2 + 2 : . &U 2 + 0Q2 + 62
AZdhgqblv mjZ\g_gb_ j_Zdpbc GZ hkgh_ we_dljhggh]h [ZeZgkZ jZkklZ\blv
61. FeSO4 + O2 + H2O :
J KMnO4 + H2O : KG JH K GJH
0Q 12 1D%L2 +12 : +0Q2
64. NO .0Q2 + 2 : .12
1+ &U 2 : 1
%LK 6QK .2+ : %L
1D&O2 + 6 : + 62
.&U2 %U .2+ :
7H .2+ : . 7H2
&X 6 +12 dhgp : + 62
)H62 .0Q2 + 62 :)H 62
. 6 .0Q2 + 2 : 6
73. ., . &U 2 + 62 : ,
1L 2+ 1D&O2 + 2 : 1L 2+
75. Zn + H3AsO3 + H2SO : AsH3+

Dhfie_dl aZ^Zgbc ^ey dhgljhevghc jZ[hlu
L_fZ ©:lhfghe_dmeyjgh_ mq_gb_ª
< : J B : G L
H^bgZdh\h eb qbkeh fhe_dme kh^_j`Zsboky \ ] \h^hjh^Z b \ ] dbkeh
Kdhevdh fhev dhebq_kl\Z _s_kl\Z khklZ\eyxl fhe_dme"
Q_fm jZ_g wd\b\Ze_gl kheb DG JH "
Ijb ^Z\e_gbb dlZmj_l_fh jZhlhjh_ dhebq_kl\h]ZaZ aZgbfZ_l h[t_f fe
ghjfZevguo mkeh\byo
<uqbkeblv fhevgmx fZkkm Zp_lhgZ _keb fZkkZ fe _]h iZjh\ ijb hK b
<_s_kl\h kh^_j`bl dZjehfZ b dbkehjh^Z <u_klb ijhkl_crmx nhjfm
< : J B : G L
Kdhevdh fhe_dme kh^_j`Zl] m]e_jh^Z"
Kdhevdh fhe_dme kh^_j`Zl fhev _s_kl\Z"
Q_fm jZ\gZ wd\b\Ze_glgZy fZkkZ oehjZ \ _]h hdkb^_ K Ha "
DZdhc h[t_f adZcfhha^moZ ijb *f*K b ^Z\e_gbb dlZ "
Iehlghklv]ZaZ ih \ha^mom jZ\gZ Q_fm jZ\gZ fhevgZy fZkkZ]ZaZ"
Ijb \aZbfh^_ckl\bb pbgdZ k kheyghc dbkehlhc \u^_ebehkv fe \h^hjh^Z
ijhj_Z]bjh\Z\r_]h pbgdZ
< : J B : G L
DZdh_ agZq_gb_ bf__l qbkeh :\h]Z^jh" Kdhevdh fhe_dme G H kh^_j`Zl
Kdhevdh fhev _s_kl\Z kh^_j`blky \ ] \h^u"
Q_fm jZ\gZ wd\b\Ze_gl CaCO3 ZZ?kkZ kheb
Ijb *f*K b ^Z\e_gbb dlZ fZkkZ e]ZaZhjeZ\gZy fZk]kZQw_fm]hjZ\ZgaZZ"
< dZdhf h[t_f_ kh^_j`blky d] \ha^moZ Ff] fhev ijb g m
< khklZ_ _s_kl\Z gZljby k_ju b dbkehjh^Z <u_^bl_ nh
gZau\Z_lky"
< : J B : G L
Q_fm jZ\gZ fZkklZ fhe_dme ^bhdkb^Z k_ju"
Kdhevdh fhev khklZ\eyxl]]b^jhdkb^Z gZljby" v
H^bgZdh\ eb wd\b\Ze_gl ojhfZ \ kCH2(SO4)3?gbyo K]K b
Z ^Z [g_l
Ijb ghjfZevguo mkeh\byo g m] \ha^meoZDaZdbfZ[tl_h[aZtf_l lZ `_ fZkkZ
^Z\e_gbb dlZ"
Hij_^_eblv h[t_f aZgbfZ_fijb *f*Kdb ^Z\e_gbb dlZ
< khklZ_ _s_kl\Z \h^hjh^Z k_ju b dbkehjh^Z DZdh\Z i
<: J B : G L
DZdhc _k bf_xl NaOH?he_dme
MdZ`bl_ ijb[ebabl_evgh_ qbkeh fhev kZoZjhau K G H kh^_j`Zsboky \
Q_fm jZ_g wd\b\Ze_gl H2SQghc_kbkeijbu\aZbfh^_ckl\bb k DHGKHSO4ah\ZeZkv
=Za aZgbfZ_l h[t_f- *f*Kebijb dlZ GZclb h[t_f]ZaZ ijb ghjfZevguo mkeh\
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< khklZ_s_kl\Z dZeby \h^hjh^Z kmjvfu b dbkehjh^
nhjfmem wlh]h _s_kl\Z

L_fZ ©Kljh_gb_ _s_kl\Zª
< : J B : G L
DZdb_ \Ze_glghklb fhSe_l dZhdb\eyHv lhq_fm"
GZibkZlv we_dljhggm^ZlvhjZmebq_bkdh_ bah[jZ`_gb_ we_f_glZ k ihjy^dh\uf g
DZdh\h ijhkljZgkl_ggh_ jZkiheh`_gb_H2S?bi]b[jb^baZpbb \

DZd baf_gy_lky oZjHZdlHEr,kJyaDoZ\dZy ba wlbo dbkehl kZfZy kbevgZy"
5. F_lZeebq_kdZy k\yav lhq_fm f_lZeeu ieZklbqgu dh\db"
< : J B : G L
GZibkZlv agZq_gby \k_o d\Zglh\uo qbk_e ^ey we_dljhgh\ ZlhfZ
GZibkZlv we_dljhggmx nhjfmem we_f_glZ k ihjy^dh\uf ghf_jhf b ihdZaZl
3. >hghj-ZhdpilhjguC f_oZgbaf hSiF4H2-h\Zgby >
Qlh lZdh_ wg_j]by bhgbaZpbb b dZd hgZ baf_gy_lky \ ]jmii_]eZ\ghc ih^
MdZaZlv lbi]b[jb^baZpbb H2SO4. \ fhe_dme_
< : J B : G L
Kdhevdh we_dljhgh\ fh`_l jZkiheZsjZ,bvfk'y HglZ_ilh^1mjh\kgo_h^y ba d\Zglh\uo qbk
GZibkZlv we_dljhggmx nhjfmem b ^Zlv]jZnbq_kdh_ bah[jZ`_gb_ we_f_glZ
MklZgh\blv ijhkljZgkl_ggmx kljNFdlbmjbmi fhe[jb^baZpbb
DZdZy k\yav [he_±H,ihPeyH,gZAs±H.
lhq_fm f_lZeeu ijh\h^yl lhd l_ieh"
< : J B : G L
GZibkZlv agZq_gby d\Zglh\uo qbk_e ^ey \k_o we_dljhgh\ we_f_glZ k ihjy^
GZibkZlv we_dljhggmx nhjfmem we_f_glZ k ihjy^dh\uf ghf_jhf
Hij_^_eblv lbi]b[jb^baZpbb c ZlhfZ m]e_jh^Z \ fhe_dmeme_kH _keb
DZdhc lbi k\yab KBrfhehdZmæZlv k ihfhsvx ko_fu h[jZah\Zgb_ k\yab
5. MdZaZlv ihq_fm \h^Z k fhe_dmeyjghc fZkkhH2SecM\=e81_±]kZya`b^dhklvx Z
< : J B : G L
Dhjimkdm\heyjghh\Zy ^\hckl_gghklv we_dljhgZ
GZibkZlv we_dljhggmx nhjfmem mjjZm^bZq_v kwde_djlZkgjg_h^_e_gb_ we_idhjy^dh\we_
ghf_jhf
HibkZlv we_dljhggh_ BkF4-h_gb_ bhgZ
MdZaZlv lbi]b[jb^baZpbb :H dSiF4gby \ fhe_dme_
GZ dZdhf hKghSZZkbheh`_gu \ h^ghc]jmii_ i_jbh^bq_kdhc kbkl_fu gh \ jZ

L_fZ ©JZkl\hjuª
< : J B : G L
Kdhevdh \h^u g_h[oh^bfh ijb[Z\blv d fe jZkl\hjZ iehlghklv] f
< dZdhf h[t_f_ fhj^Z_kjl\bhkZy Na2SO4.
<uqbkeblv fheyjghklv b ghjfZevghklv jZkl\hjZ G JH iehlghklv dhlhjh]
>ey g_cljZebaZpbb fe g jZkl\hjZ dbkehlu ihlj_[NaOHehkdhefehjZ]kZ\hfhZ
kh^_j`blky \ e jZkl\hjZ
5. D fe \h^u ijb[Z\beb-ghj]h jZkH2SiOZ iehlghklvx] fe <uqbkeblv fZkkh\
ihemq_ggh]h jZkl\hjZ
< fe \h^u jZkl\hNa2CO DZdh\Z fheyjgZy dhgp_gljZNa2CO wdwbh\Zej_ZgklZhj_
< : J B : G L
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<uqbkeblv fheyjghklv jZkl\hjZ _keb \ fe kh^_j`blky]]b^jhdkb^Z dZ
<uqbkeblv fZkkh\mx ^hex jZkl\hj_ggh]h \H2SOkliZhlghkdvjxZkl\hj]_fe
DZdhc h[H2SO gj_[m_lky ^ey g_cljZebaZpbb] DHG
Kdhevdh \h^u gm`gh ijbeblv d e kheyghc dbkehlu iehlghklv]
iehlghklv] fe
<uqbkeblv fheyjghklv HCl jiZkll\hjZlv] fe
< : J B : G L
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Q_fm jZ\gZ fZkkh\Zy ^hey jZkl\hj_ggh]h _s_kl\Z \ jZkl\hj_s_ikle\mZq_ggh]f\jhZ
Hij_^_eblv fheyjghklv jZkl\hjZ Zahlghc dbkehlu iehlghklvx] fe
>h dZdh]h h[t_fZ gm`gh jZa[Z\blv fe jZkl\hjZ k_jghc dbkehlu iehlgh
g jZkl\hj
Kdhevdh fe Zgdjlkle\hlju ihlj_[m_lky ^ey g_cljZebaZpbb fe g jZkl\hjZ
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]NaOH.
< : J B : G L
DZdh\Z fheyjghklv jZkl\hjZ _kbelky\ fe kh^n_njhknhjghc dbkehlu
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iehlghklv] fe
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kh^_j`bl e wlh]h jZkl\hjZ
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Hdkb^ \h^ihkjlhjh^Zgb_ k\hckl[\Zgbhkkb _]h fgh]hqbke_gguo nhjf
<h^hjh^gZy wg_j]_lbdZ
K\hckl\Z g_dhlhjuo _s_kl\ \ k_l_ LW>
K\hckl\Z b kljmdlmjZ \h^u
Bklhqgbdb b \b^u aZ]jyag_gby Zlfhkn_jgh]h \ha^moZ
M^b\bl_evgu_ k\hckl\Z \h^u

D_ckZ^Zqb
Klhqgu_ g\h^u g_dhlhjh]h ijhfure_ggh]h ij_^ijbylby kh^_j`Zl kheb ly`_euo f_lZeeh\ ba klhqguo jZkl\hjh\ qZkh\ ih_joghkZgbhb\gu_ _s_kl\Z l:< b ^jm]b_ aZ]jyagbl_eb hdjm`Zxs_c kj_^u Hgb \ \b^_ hqbklgu_ khhjm`_gby < ijhp_kk_ bo hqbkldb ijhbkoh^yl ijhp_kku g_cljZebaZgbq_gb_f \j_f_gb bk\h_gb_ fZl_jbZeh\ hkgh\ghc b ^hihegbl_evghc \aZbfhk\yab hkgh\guo ihgylbc ^bkpbiebgu \ bo agZq_gbb ijbh[j_lZ_fhc ki_pbkihkh[ghklb b kZfhklhyl_evghklv \ ijbh[j_l_gbb agZgbhcZkhlfh^l\gl bbekqZjiu\iZkkwdaZf_gZpbhggh]h [be_lZ AZ^ZqZ j_r_gZ ijZ\bevgh klm^_gl kihkh[_g h[hkgj_r_gby aZ^Zqb
Klhqgu_ g\h^u g_dhlhjh]h ijhfure_ggh]h ij_^ijbylby kh^_j`Zl kheb ly`_euo f_lZeeh\ ba klhqguo jZkl\hjh\ qZkh\ ih_joghkZgbhb\gu_ _s_kl\Z l:< b ^jm]b_ aZ]jyagbl_eb hdjm`Zxs_c kj_^u Hgb \ \b^_ hqbklgu_ khhjm`_gby < ijhp_kk_ bo hqbkldb ijhbkoh^yl ijhp_kku g_cljZebaZgbq_gb_f \j_f_gb bk\h_gb_ fZl_jbZeh\ hkgh\ghc ebl_jZlmju j_dhf_g^h\Zgghc \ ijh]jZihiheg_gbx b h[gh\e_gbx agZgbhcZkhlfh^l\gl bbekqZjiu\iZkkwdaZf_gZpbhggh]h [be_lZ klm^_glhf ^hims_gu g_kms_kl_gbeb __ j_r_gb_ kh^_j`Zeh g_kms_kl\_ggmx hrb[dm bkijZwdaZfmgZjbjZ\h^ysHp_gdZ ©m^h\e_l\hjbl_ZgehZ\ klZ\blky h[mqZxs_fmky h[gZjm`b\r_fm agZgbijh]jZffgh]h fZl_jbZeZ \ h[t_f_ ^hklZlhqghf ^ey ^Zevg_cr_c mq_[u b ij_^klhy

F_lh^bq_kdb_ fZl_jbZeu hij_^_eyxsb_ ijhp_^mju hp_gb\Zgby agZgbc mf_g^_yl_evghkZjbZdl_jbamxsbo wlZiu nhjfbjh\Zgby dhfi_l_gpbc \ ijhp_kk_ hk\h_ijh]jZffu

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Djbl_jbb hp_gdb d wdaZf_gm

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71- [Zeeh\ ©ohjhrh	Kh^_j`Zgb_ hl_lZ \ p_ehf khhl_lkl\mjh^l_ffhgkljbjh\Zgh ag nZdlbq_kdh]h fZl_jbZeZ \klj_qZxlky g_kms_kl_ggu_ nZd ljh^_fhgkljbjh\Zgh \eZ^_gb_l_jfbgh\ihgylbe\Zgbc]bq_kdbf ZiiZjZlhf ^bk mf_klghklv mihlj_[e_gby Z[[j_\bZlmju lhedh\Zgb_\b l ^ mihlj_[e_gbb l_jfbgh\ lhdZaZgh mf_eh_ bkihevah\Zgb_ dZl_]hjbc b l_jfbgh\ ^bkp \aZbfhk\yab Hl_l \ ^hklZlhqghc kl_i_gb kljmdlmjbjh\Zg b \ukljh_g \ aZ h[s_]h kfukeZ QZklb hl_lZ eh]bqu_kdbjZ\aZgbZhk\yaZ_kdZy ijh[e_fu aZ^Zgby ihklZgh±Zdj]mf_glZpby h^u H[t_f hl_lZ g_agZqbl_evgh ij_\urZ_l aZ^Zggu_ jZfdb ijb khojZg_gbb k ljh^_fhgkljbjh\Zgh mf_gb_ Zj]mf_glbjh\Zggh baeZ]Zlvykhg[h Zj]mf_glZpby g_ \k_]^Z m[_^bl_evgZ Baeh`_gb_ ebrv hlq beexkljZpbyfb ijbf_jZfb ba ijZdlbdb >hklZlhqgZy kl_i_gv kZfhklhyl_evghklb hjb]bgZevghklv \ <klj_qZxlky f_edb_ b g_ bkdZ\`Zbxkb_\kfubkebZklbd_ klbebklb rlZfiu ?kl±v hjnh]jZnbq_kdb_ hrb[db JZ[hlZ \uiheg_gZ Zddmjzlgh [_a ihfZjhd b bkijZ\e_gbc
56- [Zeeh\ ©m^jhl\eevlgh	Kh^_j`Zgb_ jZ[hlu \ p_ehf khhl_lkl\jm^l_ffhgkljbjh\Zgh m^h\e_l\hjbl_evgh_ agZgb_ nZdlbq_kdh]h fZl_jbZeZ30%)klv ljh^_fhgkljbjh\Zgh ^hklZlhqgh_ \e-Z^_jfbgh_eihgylbe\Zgbc]bq_kdbf ZiiZj ^bkpbiebgu _klv hrb[db \ mihlj_[e_gbb b ljZdlh\d_ l_jfbg Z[[j_\bZlmj

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