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Exports, Imports, FDI and Economic Growth

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$CYf_O+I_mq]f$

 $I [VCR_VF \setminus S7 \setminus V_nQ \setminus Na6 \setminus bVQR_V]$

\

o`]j] q₁ ak f p. jYf \ge n][lgj+D) e q e g\]d) ^gnj*nYjaYZd] Q<M) f 9 1 Yf \ q₁ 9 &f YdB? KXG j] YdB hgjlkXG j] YdB hgjlkXG j] YdA? DXG x8 Cgo]n]j) l`]j] o add Z] 1! 9 / 1 gj\]jaf_ g^ n][lgj q₁ 8 O`] <_a ak f p f ^ap] \ [g]^a[a]f1 e Yja[]k8 h ak gj\]j g^ dY_k8 = ak f p \ [g]^a[a]f1 e Yjap g^]pg_]fgnk nYjaYZd]k8 p_b ak \ p. n][lgj g^]pg_]fgnk nYjaYZd]k8 Agj H YdYqkaY)]pg_]fgnk nYjaYZd]k Yj] \ me e q nYjaYZd]k ^gj q] Yjk. 641). 665 Yf \ /--.) o`ad]]pg_]fgnk nYjaYZd]k Yj] \ me e q nYjaYZd]k ^gj q] Yj . 665 Yf \ q] Yj /--. ^gj Fgj] Y8O mk) \ 9 0 ^gj H YdYqkaY Yf \ 9/ ^gj Fgj] Y8]₁ ak Yf p. jYf \ ge n][lgj g^]jgj l]je k Yf \ ak Yo`al] fgak] hjg[]kk+

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 $Og [`][c o`]l`]j l`] Ykkme hlagf k g^gnj Q<Me g|]d Yj] e]l)l`] ^gdtgo af _ l]klk k`gmd, Z] ae hd]e]fl]|7$

- $GY_gj | j k] d[lagf 8]$
- $\sim Q < Mj ka m dk ja M (gjj) d M agf GH 1] kl 8$
- $\tilde{Q} < Mj$]ka\ mYdf gje Ydalq+

 $<[[gj\af_lg@f\]jk\&--0')l`] e g\]do addZ] e akkh][a'a]\]o`]f dY_d[f_l`aklg_g$

а

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 $\mathcal{E} H^{\circ} 0 J^{\circ} . \mathcal{E} dg_{-} | I_{-R} |^{\circ} dg_{-} | I_{-bl} |^{\prime} s^{-\prime} \mathcal{E} J^{\prime})$

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 $= Y_k | gf [ak 1]_k | o] g fg | cf go o] [] gj fg] phgj | Y_k a hgj | K 'M Phgkalan] ^ [1 gf B? K+D ak Yakg mf [] Y_j o] [] gj fg |] a hY[1 g^] phgj | k gf B? K ak k | jg _] j | Yf | Y g^ ae hgj | k gf B? K+Og Yf ko] j |] | k] i m] k | ag f k) o] Yf Yahr]] a hmak] * j | khg f k] ^mf [lag f Y_k |] n Y_j a Yf [] \] [ge hgkal ag f + N af Yf \ K* k h j$

O`] ^ajkl YhhjgY[` ak lg mk] l`] _]f]jYdar]\ ae hmdk] j]khgfk] &BDM &N af Yf\ K]kYjYf) . 665) h+ 6)]i + -'

$$= F_W^{\dagger} \mathscr{U}^{\dagger} T_W^{\dagger} E_Z + E_K^{\dagger} V$$

o`]j] $b^{9} \&_{ab} + BDMak af n YjaYf l lg [Yf]k af l`] gj]jaf g^l`] f g_l f gmk n YjaYZd k+$

 $O`] k][gf \ YhhjgY[`ak lg mk] J DM o al` l`] gj]jaf_g^l` nYjaYZd]k af l`] Q<Meg]d o addZ] Yk ^gdtyo k & f]jk)/--0) h+/43'7$

- °) ^ajkl hdv[] af l`] dakl g^gj∖]jaf_o adtlZ] j]k]jn]∖ ^gj l`] n VjavZdJ l`VI ak f gl [Ymk]∖ Zq Yf q gl`]j n VjavZdJ k8
- O`] gj\]jaf_g^1`] j]e Yafaf_nYjaYZd]k o add ^gddgo af gj\]j g^af[j] Ykaf_[gjj]dMagf Ye gf_1`]e 8
- \circ O] dMd hdM[] af l] dMd g^g|]jaf_o addZ] j]k]jn] \langle gj l] lYj_] nYjaYZd] +

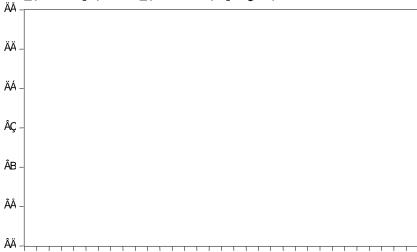
 $<[[gj] af_lg @f]]jk & -0') n Yja Yf[] \ [ge hgkalagf l]dk `go e n[` Y_an]f n Yja YZd] [` Yf_]k nf]j l`] æ h Y[l g^ alk go f k`g[c Yf \ l`] k`g[c g^ gl`]j n Yja YZd] k+O`]j]^gj]) l`] n Yja YZd] k nf]j l`] æ h Y[l g^ alk go f k`g[c Yf \ l`] k`g[c g^ gl`]j n Yja YZd] k+O`]j]^gj]) l`] n Yja YZd] k af l`] Q<M+D`t_j] Yd phgjik XG) t_j] Yde hgjik XG Yf \ t_j] Yde 2 af fgn Ylagf af Y^][laf_l'] n Yja YZd] k af l`] Q<M+D`t_j] Yd phgjik XG) t_j] Yde hgjik XG Yf \ t_j] Yde 2 af fgn Ylagf af Y^][laf_l'] n Yja YZd] k af l`] Q<M+D`t_j] Yd phgjik XG) t_j] Yde hgjik XG Yf \ t_j] Yde 2 af fgn Ylagf af Y^][laf_l'] n Yja YZd] k af l`] Q<M+D`t_j] Yd phgjik XG) t_j] Yde hgjik XG Yf \ t_j] Yde 2 af fgn Ylagf af Y^][Yd] jjgj n Yja Yf [] g^ j] YdB? K XG Yf Ydf ^gj][Ydf `gj ar gf k) l`]f j] YdB? K XG ak kYa [] gZ]] pg_]fgn k+D`t_j] Yd Phgjik XG gj, Yf \ t_{j] Yd Y} D KG [Yf] phd Yaf kge] g^ l`] ^gj][Ydf] jjgj n Yja Yf [] g^ j] YdB? K XG Yf Ydf ^gj][Ydf `gj ar gf k) l`]f j] YdB? K XG ak kYa [] gZ]] f \ g_] fgn k+ Q'ja Yf [] yf B? K XG Yf Ydf ^gj][Ydf `gj ar gf k) l`]f j] YdB? K XG ak kYa [] gZ]] f \ g_] fgn k+ Q'ja Yf [] \] [] ge hgkalagf [Yf Z] \]jan] \ 'jge l`] gjl`g_gf Yd r] \ æ hndk] *j] khgf k] 'nf[lagf & F_W & Z'' Yk o] df Yk 'jge l`] _]f] j Yd r] \ æ hndk] *j] khgf k] 'nf[lagf & F_W & Z'' Yk o] df Yk 'jge l`] _]f] j Yd r] \ æ hndk] *j] khgf k] 'nf[lagf & F_W & Z'' Yk o] df Yk 'jge l`] _]f] j Yd r] \ æ hndk] *j] khgf k] 'nf[lagf & F_W & Z'' & Xi af Yf \ K] kYj Yf . 665) h+/-'+$

O`] nYjaYf[] \][ge hgkalagf k Yj] Ydkg k]f kalan] lg

 $\begin{array}{l} Yd & A? & D j] kh] [lan] dq + Cgo]n] j) l`] ^gnj k] ja] kj] YdB ? K) j] Yd] phgjlk) j] Ydae hgjlk Yf | j] Yd A? D Yj] fgfkl Ylagf Yjq o al` Yf gj | j`a_`] j l`Yf gf]) ^gj o`a[` o] [Yf xl [gfkljn[1 Q < M + O] j] ^gj]) lg kYlak^q l`] [gf | alagf g^ l`] Q < M e g |] d l`Yl Ydd n YjaYZd] k e nkl Z] D x') De nkl lj Yf k'] j l`] k] ja] k af lg l`] f Ylnj Yddg_Yjal` e + \\ \end{array}$

 $\begin{array}{c|c} ELMP \\ \hline & 2FXPCYY^{EP}^{TX} \\ \hline P \\ \hline$

ELMP



8 T P * 26 P N T P 8 Y E T P P P P Y P

+&? L\Lc]TL

GY_	Gg_G	GM	AK@	< D>	N>	CL
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	. 22-4. 5-	. 4/ -2334	1⊬.]*-6	*4-65. 5-2	*3-223-	*4+166/5/
/	. 41+-/5	//-203/.	1+5]*-6	*5+02330	*2-6. 2/63	*4+1546
0	/-5-534-	00-B1/46	26]*-6	*6-013/24		

 $ELMP - 2EP]^{Q} > LR > PXR'S 5 | TP | T_Q| ? LVLc]T_L$

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M@ <gb?kxg&.'< th=""><th>314 &-D-/-6'</th><th>-+462.5 &-2-45-'</th><th>- +06212. & ≠ 5- 1- '</th><th>*. + 2- 5- 5 &-51616'</th></gb?kxg&.'<>	314 &-D-/-6'	-+462.5 &-2-45-'	- +06212. & ≠ 5- 1- '	*. + 2- 5- 5 &-51616'
	V/ + 1/ . 1W	V0202/W	V. +1 / 6W	٧*

 $\label{eq:element} ELMP. 2\,G3\,C~?~YOPVa~TS>LR~YQ8~Y_\ LXO6~WWc~GL(TLMP)~')~1/~, \$)~110\$LXO*(()~\#$

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5 YWZYXPX^	DUPa XP]]	5 ST/{	6 Q	B∖ YM&
	-+3430/	-+12.54		4- 0/
/	- +063655	5. 1/ 32		0336
0	*- +/ 22/ 1	- 4 3/ 45/		B-5/
1	22/ / 30	2425-1	•	- + - 61
Egaf 1		/ 4 65-05	1	26/ /
5 YWZYXPX^	=_\ <i>*</i> Y]TJ	5 STM	6 Q	B\ YM&
	/ -0. 066/	- - B- 4534	•	- +1023
/	/ -201160	- + 466		2635
0	0-33/4-4	234/43		- +12.0
1	145./06	/+/-033	•	-+121
Egaf 1		0-2421-5	1	- +1332
Egaf 1 5 YWZYXPX^	<l\[_p%p\]< td=""><td></td><td>1 B\ YM&</td><td></td></l\[_p%p\]<>		1 B\ YM&	
	<l\[_p%p\] - 420- 20</l\[_p%p\] 			- +1332
		L OQ	B\ YM&	- +1332
	- +420- 20	L OQ	B\ YM& 853/	- +1332
5 YWZYXPX^ /	- 4 20- 20 . + 61. 32	L OQ	B\YM& ₽53/ ₽453	- +1332

ELMAP/ G3 C CP]TO_LV@Y\ WLVYC EP]^Q\ ? LVLc]TL

ELMP0

 $ELMP 12 < VSLX PX 5 YKYPK L^MX EP]^a TS A Z^TWLV>LR>PXR'S YQES \ PP QX ? LYLC] TL Pf j] klja[1] \ >gaf 1]_j Ylagf MYfc O] kl & Oj Y[]'$

Cqhgl`]kar]∖ Ig+g^>@&kď	@a_]fnYdn]	Oj Y[] NI Ylakla[-+2 >jala[YdQYdh]	KjgZ .((
I gf](<1e gkl.(<1e gkl/(<1e gkl0	60- 255 521205 1//125 - +24032	. 30 0 45-3. / 26 . 5-51620 50. 013	14-523.0 /6-464-4 .2+1614. 0-51.133	-+ -+.2- -+43-

 $Pfj]klja[1] > gaf1]_jYlagf MMfcO]kl & HYpae me @a_]fnYdm]'$

Cqhgl`]kar] $I g+g^> @ k'$	@a_]fnYdm]	HYp*@a_]f NlYlakla[-+2 >jala[YdQYdn]	KjgZ ((
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H Yp*]a_]fnYdn] l]kl af $[y]k0[gafl]_jYlaf_]ifdx' Yl1`] -+2 d]n]d$ (\]fgl]kj]b][lagf g^1`] `qhgl`]kak Yl1`] -+2 d]n]d ((H Yl F af f gf *C Ym *H af`]dk & 666' h*nYdn]k

Yd]jf Yan] j91 [Yf fgl Z] j]b][1]\ Yl l`] -+2 d]n]d) Z] [Ynk] l`] nYdn] g^ $u_{H<S}$ &' ak d]kk l`Yf l`] 2 h]j[]f1 [jala[YdnYdn] g^0-51+O`ak km_]klk l`Yl l`] f me Z]j g^[gaf1]_jYlagf n][lgjk ak l`j]]+

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 $O^{\ } [Fg^{\ } Yfk]f \ 1]kl \ _an]kl^{\ }]klae \ Yl \ l^{\ } Yl \ l^{\ } j] \ Yj \ l^{\ } j] \ [gfl]_jYlaf \ _n][lgjk \ o \ a^{\ } af \ l^{\ }] \ ^{\ } gnj \ k]ja]k \ kK \ Y^{\ } aje \] \)D[gflaf \ m] \ lg \ l^{\ }] \ f]p[kl]h \ g^{\ } [lklaf \ l^{\ }]l \ Mx \ Ydiq \ j] \ Yagf \ o \ a^{\ } af \ l^{\ }] \ ^{\ } gnj \ k]ja]k \ kK \ Y^{\ } aje \] \)D[gflaf \ m] \ lg \ l^{\ }] \ [f]p[kl]h \ g^{\ }]lklaf \ l^{\ }]l \ Ym \ Ydiq \ J) \ D[gflaf \ m] \ lg \ l^{\ }] \ J] \ Mx \ Ydiq \ J) \ D[gflaf \ m] \ lg \ l^{\ }]lklaf \ J^{\ }]lkm \ J^{\ } Jlklaf \ J^{\ }]lklaf \ J^{\ } Jlklaf \ J^{\ }]lklaf \ J^{\ }]lklaf \ J^{\ } Jlklaf \ J^{\ } Jlklaf \ J^{\ }]lklaf \ J^{\ } Jlklaf \ J^{\ }$

ELMP)(

8 TR_\P+&0

В

8 TR_\P+&)

8 **R_\P+&***

 $\label{eq:Ggcaf_Yi Aa_nj k 0+0 Yf 0+3) Yk g[c lg A? D Yk klYlakla[Ydtt af ka_f a'a[Yf1]^][lk gf B? K]]phgjlk Yf ac hgjlk+O ak ak af [gf ^ta[1 o al 1^] B>= @R 1]kl j]kmdk+=ml)1^] k g[c lg A? D Yk Yk gjl*jmf hgkalan]]^][l gf A? D^gj 1^] ^ajkl log q] Yjk+O]j] Yl]j)1^] ac hY[1 g^ A? Dk g[c gf A? Dak f gl klYlakla[Ydtt ka_f a'a[Yf1+$

8 TR_\P+&+

 $8\mathbb{R} \setminus P + \delta_x$

8 **R**\P+&-

8 **R**\P+&.

BP\ TYO	D& &	C73>71 BK>	C7 3 >9 6 BK>	C73>;? BK>	C73>86;K>
	-+1.0.2	/ 5-31/ - 4	-+/-0.3	40043.	-+
		& 0-26/6'	& 0+64'	&0+65/'	&+'
/	-+34064	3. +1. 21-	1-5/21	065606	/ -461616
		&. -6 312'	&-603-5'	&. +4/0'	&-30644'
0	-+-5-5/	31 + 5 - 5 -	. / + 261/	. 2-45665	4-53646-
		&0 4 /62'	& +2/4. '	&-50242'	& -223/2'
1	-+233/1	33-06202	+ 46-4	. 1-4/ 66/	5-462331
		&2-634-'	&631-'	&4-64.5-'	&t+-55/'
2	- + - / 212	40-4233/	34460/5	. / +44- 33	4 ± 60060
		& 1-0-46'	&-506-6'	& -B611/'	<i>8</i> 9-40. 5. '
3	- + 1- 6- 3	41-3-2-0	5+1310	5 34	3+/5663
		&0-20//'	&# . 6/ - '</td><td>&. 2. 3'</td><td><i>8</i>0+14/4/'</td></tr></tbody></table>		

GL\ TXNP 6 PNYWZY] TIXX YQ\ PLXIWZK>

 $O]]klæ Y] \ j]kmdk ^jge l`] BjYf_]j [YnkYddq, =dg[c]pg_]f]dq l]kl) l`] æ hmdk]$

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	₩4-5123-W	₩523/6W	₩3-B- 2- 3W	V. + 3264W
? P H H T	*-+44-//	*- + 053-6	*- +0/ 0332	*-+0215-
	&+4/6-'	&+/.'	&+55/3'	&-5211/'
	₩/ +1/ 51/ W	₩/ + 122. W	₩0-₿3363W	₩-+2523W
M*ki mYj]∖	654041	643/ 52	65/ / 31	51 22
< b+M*ki my]	65-4/6	6305- 1	64/ 60-	- 424220
Nme ki+j]ka\k	-+30-55	-+1351/	-+6/161	5-B34/36
N+@+]imMagf	-+243/0	-+546./	-+3644/	
A*kl Ylakla[. 15-2534	454.616	24/6-	+ 3. 05
Gg_dc]dìgg∖	16-565/4	044/25.	11+2563	*/0-6102-
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Ŋ`o Yr N⊳	*/+46113	*. + 013. 2	*8635/2	/ -510006
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Nf? + 006				

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 $ELMP) / 29 \ LXRP \ 5 \ L_] LXP \ '4 \ WNU7 \ bYRPXPT \ H \ LXOEP \ ^Q \ = Y \ PL$

6 PZPXOPX^` L\ TLMP2 C7 3 >9 6 BK>

ak Yk ^gdtgo k7]phgjlk) æ hgjlk) A? DYf \ B? K+O`]]klæ Yl] \ j]kmdk ^jge J DM & ke]flæf] \ Z]dgo ' Yj] [gf kakl]fl o al` l`gk] ^jge l`] B >= @R l]kl o al` l`ak gj \]jaf_ g^ n YjaYZd]k) [gf ^aje af_l`] jgZnklf]kk g^l`ak gj \]jaf_+

 $\label{eq:a_mj_l} Aa_mj] 1]p`aZalk l`] >`gd]kcq Ykqe hlgla[ae hmdk] j]khgfk] ^mf[lagf+D af[dm,]k . 3 ke Ydd ^a_mj]k o`a[`Yj] \]fgl]\ Aa_mj] 1+) Aa_mj] 1$

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 $8\mathbb{R} \setminus P, \&$

 $8\mathbb{R} \setminus P, \&$

 $8\mathbb{R}(P, \&)$

8 TR_\P, &*

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 $\label{eq:Ggcaf_Ya_mj} Ggcaf_Ya_mj]k 1+0 \ v \ 1+2) \ A? \ Dk`g[c \ ak \ kl \ Maklaf \ Ydth \ af \ ka_f \ a'a[\ Yfl \ af \ ak \]^][1 \ gf \ B? \ K) \]phgjlk \ Yfl \ ae \ hgjlk+=ml) \ al \ Yk \ Yk`gjl*jnf \ hgkalan \]^][1 \ gf \ A? \ D^{\prime}gj \ l`] \ ^ajkl \ log \ q] \ Yjk+ \ O` \]j] \ Y'l] \ j) \ l` \ ae \ hYll \ g^A? \ Dk`g[c \ gf \ A? \ Dak \ fgl \ kl \ Maklaf \ Ydth \ ka_f \ a'a[\ Yfl \ \& Aa_nj] \ 1+3'+$

8 TR_\P, &+

8 **ℝ**\Ρ, &,

8 **ℝ**\Ρ, &-

8 **ℝ**\Ρ, &.

 $\texttt{D} \texttt{ kme e Y}_jq) \texttt{ ae hmck} \texttt{ j}\texttt{ kmgfk} \texttt{ j}\texttt{ kmdk Y}_j \texttt{ e gklch} \texttt{ [gfkakl]floa` l`] B>= @R l]kl)]p[a$

A? D-O`] ac hY[1 'jge]phgjlk gf A? DYf\ ac hgjlk ak hgkalan]+@phgjlk Yj] fgl Y^][1]\ Zq B? K) ac hgjlk Yf\ A? D,o`a(` Ydkg \ a'']jk 'jge 1`] H YdYqkaYf j]kmdk+

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BP\ TYO	D& &	C73>71 BK>	C73>;? BK>	C73>86;K>	C7 3 >9 6 BK>
	-+546./	+	-+	-+	-+
		&+'	&+'	&+'	&+'
/	-+2164/	64 4 2422	533513	- + - 040-	-+4.544
		&-54/01'	& - 0 -360'	&-26./4'	&±./41'
0	<i>-¥</i> . 153-	62-202.1	0-31060/	-+2/5	B355/ /
		&B1. 3'	& +04. 5′	&-B/ 665'	&+/6'
1	- + 3546-	61-00/55	1-25/065	-+2531-	- +6/ 3- 54
		&2-2660'	&4+16325'	& -B/261'	&4-2600/'
2	0. 5144	60-63440	1-412541	- # 36- 40	. + . 40. 6
		&5+16/'	& -B6- 5- '	& - 4 / 53- '	& 5-B46'
3	033-41	61÷0/13	1+1234.1	540	. + - 6616
		&-+321'	& -6-51/'	& -02/3.'	&. ≠3-6'

. .

GL\ TXNP 6 PNYWZY] T'IXX YQ\ PLYPbZKV

GL\ TXNP 6 PNYWZY] TIXX YQ, PLVIWZKV

BP\ TYO	D& &	C73>71 BK>	C73>;? BK>	C73>86;K>	C7 3 >9 6 BK>
	-+3644/	04-06.13	3/-В- 521	-+	-+
		&1-2465'	&1-2465'	&+'	&+'
/	-+.2531	36-03612	0-+6./1	- +/ 15. /	- <i>¥</i> . 116-
		&0+.55'	&/ 400-'	& +521. ′	&+1.234'
0	-+305-0	51-022	. 2+-206	05. 2. /	- 4./212
		&-+6433'	& +15. 46'	& +632-4'	& -362'
1	- <i>+</i> . 1/01	55- 3 410.	+1/ . 20	- +16.00-	- +1. / 5/ 6
		&/+0/.'	& -0/431'	&+14535'	&+440/'
2	- # 3110/	56⊬.443	6-B1221/	0/ 0514	5. / 52/
		&1-2154'	& ≠11.3'	&4 +641/ ′	& -50-4.'
3	- - Ю. 044.	55-8346/	6-B/0.46	- . 0 1. 1	065151
		&4+6/2'	&435/2'	& -0. 443'	& +15400'

GL\ TXNP6 PNYWZY] TIXX YQ\ PL\86; K>

BP/ TNO D&& C73>71 BK> C73>;? BK> C73>86;K> C73>96 BK>

	8421-2	. 3-055	1-600222	45 - 34510	-+
		&0+2/3'	& + 5-0-'	&0 -0 150'	&+'
/	5. 4602	/ 2+0131	. 1-5/60/	24≠3-1.	/ +54230/
		&1-0.24'	& . <i>¥</i> 445'	&0-2201'	& -24055'
0	614/62	/ 5+0-/6	/ 0-64342	11-2026.	0+24-21
		&1-64.4'	&/-0.0/'	&/ +16. '	& -2-335'
1	. + 6. 545	/ 5-350/ 6	/ 5-52332	01+60.6	5+3354.
		& 3+20. '	&0-005-'	&B/11'	&-B-3/-'
2	. + 52364	/ 6-5/ 021	0-+/261	/ 6+ 3030	+65356
		&4+-53'	&1+-10'	&B. 50'	&. +2. 6'
3	. #016	0. +45005	/ 6+0.66	/ 4-04622	4-2-6
		&4-B62. '	&1+.66'	&.+36-'	&/-B1'

 $O`]]klæ Y] \ j]kmdk ^jge l`] BjY[_]j [YnkYddq,=dg[c]pg_]f]adq l]kl) l`] æ hmdk] j]khgfk] l]kl Yf \ nYjaYf[] \][ge hgkalagf \]e gfkljY] l`]]phgjl*d] \ _jgo l` `qhgl`]kak+O`]j] ak [YnkYddq g^ æ hgjlk gf B? K) Znl l`ak æ hY[l ak o]Yc+R] [Yffgl _an] Yfq [gf[dnkægf YZgnl l`] æ hY[l g^ljY] dZ]jYdar Ylægf gf][gf ge a[_jgo l` af l`] [Yk] g^Fgj]Y+$

 $O'] \ (a^{j}) f[]k af]klae Y] \ j]kmdk Z] lo]]f Fgj] Y f \ H YaYqkaY Ykc ^gj]phdYf Ylaef + N] [laef 0+l o adle Yh l`]][gf ge a[hgdq[a]k g^Fgj] Y f \ H YaYqkaY gf lg l`] j]kmdk g^l`] Bj Yf_]j [YhkYddq,=dg[c]pg_]f] alq]]kl) l`] ae hmdk] j]khgf k] * mf[laef Yf \ N'jaYf[] \ [ge hgkalaef + 1.5] f \ (a f Yf) \$

+& 3 XLV:] []\$5 YWZL\ []YX LXO7 bZVLXL/IXX YQ'SP 6 TQP\ PXNP] TX 'SP 7] ^IWL/PO CP]_V] QYW ? LVLc]TL LXO= Y\ PL

 $O'] \langle a^{j} j f [] k af l']] klae Y] \langle j] kmlk 'jge H YdNqkaY Yf \langle 'jge Fgj] Y Yj | n] lg \\ \langle a^{j} j] f [] k Z] lo]] f l'] log [gmflja] kx][gf ge a[hgda[a] k+O'] e gkl 'nf \ Ye] f IYd \ a^{j} j] f [] k$ $Yjak] 'jge l'] _gn] jfe] f lkx nakagf k g^{l'] jgd] g^A? DYI l'] lae] k l'] k] \ YIYO] j] [gdd] [l] \+O']$ $H YdNqkaYf _gn] jfe] f l [gf ka] jj | A? Dlg Z] l'] [gnfljq% d] Y af _ af \ mkljaYdar Ylagf hjg_j Ye$ $& Ege g) / - 0) h+ - - ') o`] j] Yk Ngnl` Fgj] YZmad Yf af l] _j Y] \ f Ylagf Yd] [gf ge q ZYk] \ gf l`] d] Y$ $jgd] g^{l`] y[` Y] Zgdz & Fae). 665) h+5. '+$

 $\label{eq:likely} O`ak k][lagf [gf kaklk g^ log h Yjlk+O`]^ajkl h Yjl]phdYaf k l`]]klae Yl] \ j]kmdk l`jgm_` Yf Ydq kak g^ H YdYq kaYf][gf ge a[hgda[q+O`] k][gf \ hYjl]phdYaf k l`]]klae Yl] \ j]kmd l`jgm_` Yf Ydq kak g^ F gj]Yf][gf ge a[hgda[q Yf \ hgaf lk gml l`] \ a^{y}]jf[]k Z]lo]]f l`] log [gmf lja]k+$

+&&? L\Lc]\L

H XXqkaYk a'l] jge Yf ac hgjl*knZklalnlagf hgd[q lg Yf]phgjl*gja]fl] hgd[q af . 635 klæ mdM]\]phgjlk mkaf_lggdk km{` Yk af kmjYf[])[j]\d*j]^af Yf[af_k[`]e]k)\]nYdmMagf g^l`] $jaf_a) Yf g^{j} = [1 g k \& g g) / - 0 h + 16 + Ajge 1] . 64 - kgf 1] _gn]jfe [f1 [gf ka]j] 1]$ $\left[\frac{1}{2}\right] + \left[\frac{1}{2}\right] +$][gf ge q+D[\]]\)l`] kn[[]kk g^l`ak hgda[q kmhhgjlk e q ^af \ af _ l`Yl]phgjlk`Yn] `Y\ Yhgkalan]]^M][1 gf H YaYqkaYf][gf ge a[_jgo l` + OYZd] . 6 k` go k l` Yi H YaYqkaY%]phgjl k` Yj] g^A B? K af[j]Yk]\ ^jge 1.+1# af .64- lg ...-## af /--4+O`] Yh]jY_]]phgjl _jgol` jYl] Yf\ l`] $\label{eq:constraint} \label{eq:constraint} \label{constraint} \label{eq:constraint} \$. 6'+D'l`]][gfge a[Yf\ ^afYf[aYa[jakak)Y`]Ynq\][j]Yk] af]phgjl_jgo l`jYl]d]\ lg Y\][j]Yk] af l`] B? K_jgo l` jY]+OYZd] . 6 Ydkg j]hgjlk l`] B? K]phgjl k`Yj]) l`]]phgjl _jgo l` jY]) Yf \ $[1] B? K_jgo [i] g^H YdYqkaY'jge . 64- lg / - - 4+Agj]pYe hd]) af [i] . 641v42 gad[jak]k)[i]$]phgjl_jgol`jYJ]^]dd^jge .2-6# &641' lg *0# &642')o`a(`hYjldq d]\ lg Y\][j]Yk] af l`] B? K_jgol` jY] ^jge 5-0# &641' lg - 5# &642' +O`] . $665 < kaYf ^af Yf [aYd[jakak [Ynk] \ l`]$]phgjl_jgol`jY] lg ^Ydd ^jge 6+# &663' lg - 2# &665') o`a(`d]\ lg Y\][j]Yk] af B? K _jgol` jY] 'jge . - # & 663' lg 4 + # & 665' + O`]k] 'Y[lk Y] [gf kakd]f l o al` gf] * o Yq [Ynk Ydalq $g^{j} phgilk gf][gfge a[_jgo l` +$

 $\begin{array}{l} \mbox{Ydy} & \mbox{Ydy}$

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							• 11
J PL\	7 bZY\ ^	7 bZY\ ^	96B	J PL\	7 bZY∖ ^	7 bZY\ ^	96B
	DSL\PYX	9 \ Ya ^S	9 \ Ya 'S		DSL\PYX	9 \ Ya 'S	9 \ Ya 'S
	96B	CL/P	CL/P		96B	CL/P	CL/P
TM 64-	. 0-3	. 6-3	5-0	TM 656	05	*1	3-4
TM 64.	. 2	/.4	54	TM 66-	/ 5	1-2	6≁
TM 64/	. 6+1	04≁	1-2	TM 66.	/ 3-0	+	6-1
TM 640	/ 5-4	23	./+	TM 66/	/ 3-B	./⊬	2-6
TM 641	/ 3-4	*б	4≁	TM 660	/ 3-2	./⊬	3+
TM 642	/ 3-6	. 5-4	2-6	TM 661	/ 3-B	. 3-0	5-2
TM 643	0-	06-2	B	TM 662	/ 5-5	/ 1+1	6≁
	0 1						

ELMP) 127 bZY\ ^DSL\ P YX 9 6 B LXO7 bZY\ ^9 \ Ya ^S CL/P YQ? LYLc] TL\$) 1/(%((/ '! #

TM 644 0-+1

;XO_] \ T])1.0)1/+) 10() 10-)11()11-
Agg∖	. 4-2	. 6-3	2-4	3≁	0-5	. 5
$=]n]jY_kY \leq lgZY[g$	6	/-16	Ð	- +	- +	Ð
O]plad])[dgl`af_Yf\^gglo]Yj	. +1	3+	2	6	5-5	1-B
R gg\	0+1	6-4	2-4	04	0+1	1+1
>`]e a[Ydk	0+	1-1				

ELMP*(2ESP5 YWZYXPX^YQ? L¥c]TX7 bZY\^] YX? LX_QN_\TXR\$)1/(%11- '! #

+ = Y PL

<11`] Z]_aff af _ g^1`]]phgjl*gja]fl]\ hgd(q) F gj] Yo Yk \ a^]j]f1 'jge H YdYqkaY+R `a] af l`] .63-k)]phgjlk g^ hjæ Yjq _gg\k \ge af Y]\ l`]]phgjl _gg\k g^ H YdYqkaY)]phgjlk g^ e YfmY{[hjaf _ gg\k Y[[gmf1]\ 'gj lo g*l`aj\k g^l`]]glYdF gj] Yf]phgjl _gg\k+GYZgj*af1]fkan] e YfmY{[hjaf _ gg\k Y[[gmf1]\ 'gj 4-# g^lglYd]phgjl*e YfmY{[hjaf _ gg\k &> `g).661) h+14'+ R `ad] H YdYqkaY` Yk [gf1af n]\ lg [gfka\]j]phgjl gja]f1Yagf Yk alk d] Y(af _ hgdf(q) 'jge l`].63-k lg l`] hj]k]f1) F gj] Yj] Ydr]\ l` Yl e Ypæ ar af _]phgjlk o Yk f gl Ydb Yqk Y_gg\ hgdf(q) Yf\ e Y{] Yf Y\bnkle]f1 af][gf ge a[kljYl]_q+C]f[]) l`] F gj] Yf]phgjl k` Yj] g^ B? K af[j] Yk]\ 'jge .0-3# af .64- lg 0/+# af l`] .65-k & YZd] /.') Yf\ o Yk l`]f c]hl Yjgnf\ 0-# v1-# mh lg l`] hj]k]f1+Cgo]n]j) l`] H YdYqkaYf]phgjl k` Yj] g^ B? K af[j] Yk]\ [gf1af mgnkch 'jge 1. +# af .64- lg ..-## af /--4 Yf\ `Y\ Y`a_` Yh]jY_] d]n]dg^41+2# & YYZd] /.'+

 $\label{eq:nkljq} \label{eq:nkljq} \lab$

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)1/)%-) 1/. 90() 10) %-) 10. % ()11)%/+		
$= \mathbf{Y} \mathbf{P} \mathbf{L}$	6	- +1	2	. . 0	B		
? LNc]T	. 24	2	5	2	/ 1-B		
$G(b_{PR3I} B7H58 "N PVRQV > Z < \%)), \%' + #$							

ELMP*, 2ESPDSL/PYQ86; TX9 \Y] 6 YWP/TN; X P/WPX*\$) 1// %)11+'' #

 $= \int gj [1^{\circ}]^{af} Yf[aYd[jakak)^{1}] jgd] g^{A?} Do Yk fgl j][g_far] \langle Zq 1^{\circ}] Fgj] Yf _gn] jfe]fl+ D_Yn] fg af[]flan]k lg Yllj Y[1 A? D \ m] lg ^] Yj 1^{\circ} Yf Y^{o}j] a_f [ge h Yfq o gmd] \langle ge af Y] 1^{\circ}] e Yjc] l+J f 1^{\circ}] gl^{\circ}] j^{\circ} Yf \rangle Yk e]flagf] \langle YZgn]) 1^{\circ}] \langle ge]k la[^{aj} k \ a fgl^{\circ} Yn] Yfq af[]flan] lg$

 $\begin{array}{l} O`ak [`Yhl]j Yhhdi]k l`] ^gnj*nYjaYZd] Q < M e g | d) o`a[`ak [gfkljn[l] ^jge ^gnj] f \g_]f gnk nYjaYZd]kw l`] dg_Yjal`e g^j]YdB? K) l`] dg_Yjal`e g^j]Yd]phgjlk) l`] dg_Yjal`e g^j]Yd ae hgjlk Yf \ l`] dg_Yjal`e g^A? Dv af gj | jl g gZk]jn] l`] af l]_jYl] j]dMagfk`ah Z] lo]]f ljY[]) A? DYf \][gf ge af _jgo l` ^gj H YdYqkaY Yf \ Fgj]Y \ njaf_ l`] lae] h]jag \ ^jge . 64- lg /--1 & H YdYqkaY Yf \ ^jge . 643 lg /--4 & Fgj]Y+ \\ \end{array}$

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 $< ^p] flagm) K+Yf \setminus < +N] jd] lak+/---+J mihmi Bjgol`Yf \setminus QYjaYZadalq g^ @phgjl Yf \setminus De hgjl Bjgol`7 Dil] jf Ylagf Yd @na\]f[]^jge BjYf_]j > YnkYdalq O] klk+HUR 8 RcRX / V T 9 P [\ Z VR`LLLJ ==*/7 . 1. v/30+$

 $< d_mM(ad) H + O+Yf \setminus Q+J jlk+/ - - O+Dfo Yj \setminus Agj]a_f ? aj][1 Dfn]kle]f1 Yf \setminus De hgjlk af NhYaf +$ $= <math>dR \int NdN [NY9P \setminus [\setminus ZVP \Rightarrow b \int NY. 47. 6v05+$

 $< kY m^{*} < bYq] E+Yf ? +> Ycj YZgjlq+. 666+@phgjl*G] Bjgol Yf Bjgol Sgl bgjl >ge hj] kkagf 7 Anjl]j Oae] Njja] k @na]f[] 'jge G? >k+5b`a_NW9P [(\ Z VP' DN] R_ ` 057. 31v. 42+] (\$

=Y Yjme k`Y)<+U+Yf\ N+MYk`a\+. 666+@phgjlk) De hgjlk Yf\ @[gfge a[Bjgo1` af H YdYqkaY7 @e haja[Yd@na\]f[]=Yk]\ gf H mdan YjaY] Oae] N]ja]k+5`W[$9P\langle [\langle ZVP \rangle b_{\perp}NY. 07056v1-3+$

= Y e Yf a*J kcgg]]) H + Y \ C + E+M]] +. 664 + < j] D hgjlk Yf \ @phgjlk g^F gj] Y>gaf l]_j Y] \; = $dR \int NdX [NY9P ([XYP > b_NY...7.-6v...+$

O+) R +AYf_) R +Gam) Yf \ O+C]fjq+/---+@phgjlk De hgjlk Yf \ Df[ge] af OYao Yf 7<f @pYe af Ylagf g^1`] @phgjl*G] \ Bjgo l` Cqhgl`]kak+= $f dR \int NdV [NY9P [\ Z VP \rightarrow b \int NY. 17. 2. v . 3++$

>`g) N+. 661+ $HUR8f[NZVP` | S? | PV[9P [ZVP8RcRX] ZR[a+R Yk`af_lgf ?>7D klalnl] ^gj D1] jf Yagf Yd @[gf ge a[k+$

? M kj Ye & M kj Ye D 1] jf Magf Ye D $D [++\&-3'+C[M R = dR_N k/ [NM/ [NM/ Q: V/N] PWY8 NAN [7 \ <math>b[a_W k V H Z R G R_W : \ Z Na + V$? M Y Aad W M j j a n Enf $] . 5) / - . -)^j ge P M G 7$ ` l l h k 7, o o o -O ge k g f g] - [ge , ? a j] [l g j q N j n a [], / - - 3 * - 1 - . , R] Z - K n Z d [,+

 $(f)] jk R + - -0 + 5] WRQ9P [ZRa_VP HZRCR_VC+CgZgc] f I E7R ad q+$

@k^Y Yf a) C+N+. 66. +@phgjlk) De hgjlk Yf \ @[gf ge a[Bjgo l` af N] e a*D \ mkljadar] \ >gmf lja] k+ $\Rightarrow b_{I} NY S8 RcRX JZR [a 9 P [\ Z VP` 02760 v... 3+$

 $\begin{array}{l} \operatorname{Anf}_{D} C \neq B \neq = + \operatorname{Nvo} [q] R \neq + \operatorname{Gg} Y_{A} + \operatorname{SaY}_{+} . 661 + \operatorname{Qphgjlk} D hgjlk Y_{A} D hkljaYd Kjg h lag f 7 \ cma [f] \ jg < h Y_{A} [] Y_{A} + f \ dR [Nd ([NY 9P_{A} + f \ dR [NY 5754v65+ f \ dR [NY 5754v65+ f \ dR [N]])] } \\ \end{array}$

 $Cnkl] \) \ N+. \ 66/+O`] \ @e \]j_af_ P + N+>njj] f l < [[gnfl?]^a[al af l`] . \ 65-k7Y>gafl]_j \ Ylagf < f \ Ydq kak+HUR FRc \ Vd \ \ S9P \ [\ ZVP` N[QGNAV \ AP` 417. \ 26v. \ 33+$

DH A+&--6'+

... ~