

# ARTS1691

H\Y`I gY`cZ@Ub[i U[Y

HYfa 'H\fYY''##'&\$&\$

GW.cc``cZ<iaUb]Mg'UbX`@Ub[iU[Yg`'#'IBGK `5fng'UbX`GcWJU`GW]YbWYg

# 7 ci fgY<sup>-</sup>Cj Yfj ]Yk

## GHJZZ7cbHJWh78YHJ]`g

## 7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cWUh]cb	D∖cbY
8YVfU`5Ufcbg	X"UUfcbg4 i bgk "YXi "Ui	7 cbHUWha Y`Vm Ya U]`	,	D`YUgY WcbhUWhij]U YaU]`"

## GWXcc``7cbHJWhi=bZcfaUhjcb

GWXcc``cZ<iaUb]hJYg'UbX'@Ub[iU[Yg

@cWUhjcb. `GW&cc``C ZJWYžA cfj Yb`6fck b`6i ]`X]b[ ž@Yj Y``&ž&),

CdYb]b[ <ci fg. A cbXUm! : f]XUmž - Ua '!') da

D\cbY. Ž\*%&'-',) %\*, %

: UI . Ž\*%&'-' , ) ', +\$)

9a U]`. <u>\U`4 i bgk "YXi "Ui</u>

# 7ci fgY<sup>·</sup>8YHJ]`g

## 7 fYX]hDc]bhg\*\*\*

## Gi a a UfmcZhXY7ci fgY

Mci 'k]``YI Ua]bY`\ck`WcbhYadcfUfm`]b[i]ghg`UXXfYgg`]ggiYg`cZ`Ub[iU[Y`igY"'Mci 'k]``YId`cfY`hcd]Wg giWt`Ug`h\Y`bUhifY`cZ\iaUb`Wcaaib]WUh]cbž'h\Y`]bZiYbWY`cZgcWJU``Uh1]hiXYg`cb``Ub[iU[YžZ]fghUbX gYWcbX``Ub[iU[Y`UWei]g]h]cb`UbX`XYjY`cdaYbhž'h\Y`\]ghcf]WU``XYjY`cdaYbhcZ`Ub[iU[Ygž'UbX``Ub[iU[Y ib]jYfgU`g`UbX``Ub[iU[Y`hmdc`c[m'`Mci 'k]```U`gc`YId`cfY`fY[]cbU``UbX`g]hiUh]cbU``jUf]Uh]cb`]b``Ub[iU[Y" Mci 'k]``\UjY`h\Y`cddcfhib]mihc`kcf\_`k]h\`UbX`UbU`mgY`fYU```]b[i]gh]WXUhU"

## 7cifgY`@YUfb]b[`CihWcaYg

%" 9I d`U]b`H\Y`gcW]U``UbX`fY[]cbU``X]a Ybg]cbg`cZ`Ub[i U[Y`j Uf]UH]cb" &" 9I d`U]b`H\Y`a U]b`df]bW]d`Yg`cZ`Ub[i U[Y`W\Ub[Y" ' " 9I d`U]b`H\Y`a U]b`df]bW]d`Yg`cZZ]fghUbX`gYWcbX``Ub[i U[Y`UWéi ]g]H]cb`UbX`XYj Y`cda YbH ( " 5bU`mgY``]b[i ]gH]WXUHU`UbX`Uf[i Y`H\Y`a Yf]hg`cZH\Y`UbU`mg]g"

## HYUW ]b[ GhfUh []Yg

#### FUhjcbU`Y.

H\Y`WcifgY`dfcj]XYg`dUfhcZUb`]bffcXiWf]cb`hc`[YbYfU```]b[i]gh]WgžZcW[g]b[`cb``Ub[iU[Y`]b`]hg`WcbhYlhcZ igY"`

#### HYUW ]b[ GhfUh []Yg.

H\Y`HYUVX]b[`gHfUHY[]Yg`]bj c`j Y``YWfi fYg`UbX`hi hcf]U`g"`H\Y`hi hcf]U`g`UfY`XYg][ bYX`hc`ZcgHYf`]bX]j ]Xi U` dfcV`Ya `gc`j`]b[`g\_]``g`UbX`Yb[U[ Ya Ybh`]b`Wc``UVcfUH]j Y`HYUa k cf\_"

# 5ggYgga Ybh

## 5ggYgga YbhHUg\_g

5ggYgga Ybh'HJg_	K Y][ \h	8iY'8UHY	GhiXYbhi@YUfb]b[ CihWcaYgʻ5ggYggYX
7`Ugg'H⁄gh'%	')	\$+#%\$#&\$&\$`\$\$\$`5A	
7`UggʻhYgh'&ʻ	')	%/#/%/#&\$&\$`\$\$\$`5A	%ž
: ]bU``Ugg][ ba Ybh	' \$I	&' #%#&\$&\$`%%\$\$`DA	%ž&ž ž(

## 5ggYgga Ybh8YHJ]`g

5ggYgga Ybh% 7`Ugg'hYgh%

GhufhXUhY.Bch5dd`]WUV`Y

#### 8YHJ]`g.

G\cfhUbgkYf`]b!WUgg`HYghž`-\$`a]biHYg"

K f]hhyb`UbX`cfU``ZYYXVUW\_`k]```VY`dfcj]XYX"

Gi Va ]gg]cb`bchYg.H]a YX`cb`]bY`hYgh

Hi fb]h]b`gYh]b[.`H\]g`]g`bchU`Hi fb]h]b`Ugg][ ba Ybh

5ggYgga Ybh& '7`Ugg'hYgh&

 $\label{eq:charge} GhufhXUhY.~Bch5dd~]WUV~Y$ 

#### 8YHJ]`g.

G\cfhUbgkYf`]b!WUgg`Hyghž`-\$`a]biHyg"

K f]hhyb`UbX`cfU``ZYYXVUW\_`k ]``VY`dfcj ]XYX"

Gi Va ]gg]cb`bchYg.H]a YX`cb`]bY`hYgh

Hi fb]h]b`gYH]b[.`H\]g`]g`bchU`Hi fb]h]b`Ugg][ ba Ybh

5ggYgga Ybh' .: ]bU`Ugg][ ba Ybh

GHUfh'XUHY.

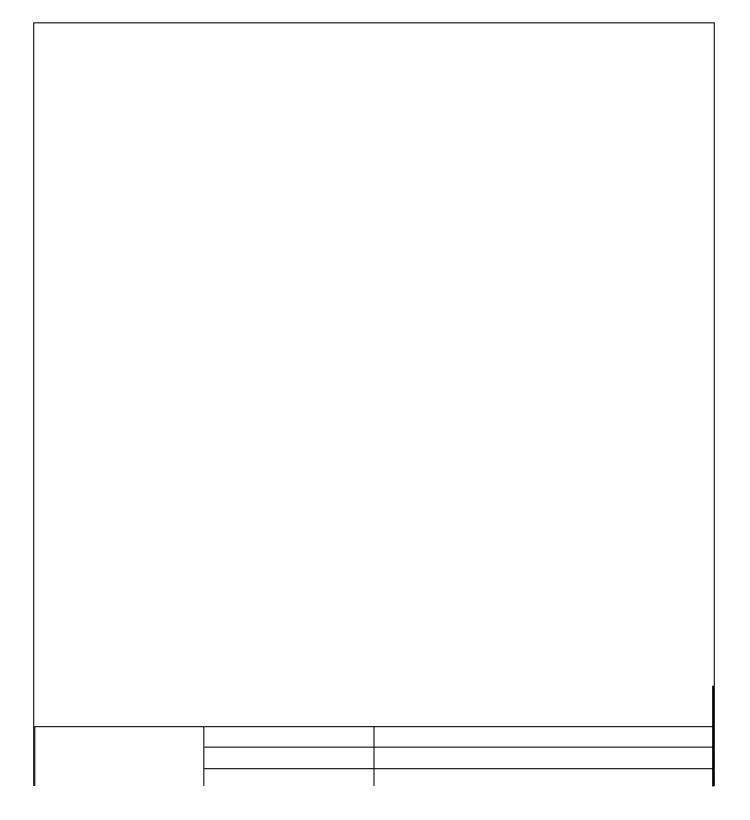
#### 8 YHJ]`g.

%) \$\$ k cfX Ugg][ ba Ybhcb ``]b[ i ]gh]Wg dfcV Ya g"

Gh XYbhg fYWY]j Y k f]hYb ZYYXVUW\_"H\]g`]g h Y Z]bU``Ugg][ ba YbhZcf`UggYgga Ybhdi fdcgYg"

Gi Va ]gg]cb bchYg.gi Va ]hcb`]bY

Hi fb]h]b`gYh]b[.`H\]g`Ugg][ ba Ybh]g`gi Va ]hhYX`h\fci [\`Hi fb]h]b`UbX`gh XYbhg`WUb`gYY`Hi fb]h]b`g]a ]`Uf]hm fYdcfhg"



		K UHWX gY`YWMYX`NcihiVY`j]XYcg`UbX`Wcad`YHY cb`]bY`UWMjj]h]Yg
K YY_''- 'Bcj Ya VYf'! % 'Bcj Ya VYf	5ggYgga Ybh	7`Ugg`HYgh&`k.cfh\`')ı ihc`VY`hU_Yb`cb`]bY`Xif]b[ `YWMifY`h]a.Y"``
	@YWMifY	=bhfcXiWhjcbihcKf]hjb[iGmghYagi7∖UdhYfi‰
	Hihcf]U`	7 \UdhYf"%\$
K_YY_`%\$.`%*`Bcj Ya VYf`!	@YWhifY	K f]h]b[ 'GmghYa g'7\UdhYf'‰
&\$`Bcj Ya VYf	Hihcf]U`	K f]h]b[ 'GmghYa g'7\UdhYf'‰

## F Ygci fWg

## DfYgWf]VYX F Ygci fWyg

: fca \_]bž'J "'Yh'U`"'5b`+bfcXi Wjcb`hc`@Ub[iU[Y"'&\$% "`-h\`5ighfU`]Ub`9X]hjcb"'A Y`VcifbY.`7Yb[U[Y

#### FYWca a YbXYX<sup>-</sup>FYgci fWYg

: ]bY[Ubž'9""@Ub[iU[Y."∔g'GlfiWhifY'UbX'IgY""&\$%(""+h\`9X]h]cb"`7Yb[U[Y

9ħbc`c[iY

H\Y`K cfX`5hUg`cZ@Ub[iU[Y`GlfiWinfY`Cb`]bY

## 7ci fgY'9j U`i Uh]cb'UbX'8Yj Y`cda Ybh

7 ci fgYgʻUfYʻdYf]cX]WU``mfYj ]Yk YXʻUbXʻghi XYbhgʻZYYXVUW\_`]gʻi gYXʻhcʻ]a dfcj Yʻh\Ya "`

: YYXVUW\_`]g`[UH\YfYX`Zfca `ghi XYbhg`i g]b[`a m91 dYf]YbWY"`Ghi XYbhg`UfY`YbWci fU[YX`hc`Wca d`YhY`h\Y]f gi fj Ymg`VmUVWYgg]b[`h\Y`dYfgcbU`]gYX`k YV``]b\_`j ]U`h\Y`A ccX`Y`Wci fgY`g]hY"`

# Gi Va ]gg]cb cZ5ggYgga YbhHUg\_g

## Hi fb]h]b Gi Va ]gg]cb

Zmci YbWci bhYf'U'dfcV'Ya 'k \Yb'UhYa dhjb[ 'hc'gi Va ]hmci f'Ugg][ ba YbhN fci [ \ 'Hi fb]hjbžd'YUgY hY'Yd\cbY'9I hYfbU'`Gi ddcfhcb'-', ) '' ' '%cf'Ya U]`'h\Ya 'cb'YI hYfbU'hY'hgi ddcfh4 i bgk "YXi "Ui '"'Gi ddcfh \ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY\_XUmg'UbX'-.\$\$Ua '-') .\$\$da 'cb'k YY\_YbXg'fl \*) 'XUmg'U'mYUfŁ'' Zmci UfY'i bUV'Y'hc'gi Va ]hmci f'Ugg][ ba YbhXi Y'hc'U'ZJi `hk ]h\'Hi fb]hjb'mci 'a UmUdd`mZcf'Ub'YI hYbg]cbžVi hmci a i ghfYhU]b'mci f'hjW\_Yhbi a VYf'Zfca '9I hYfbU'`Gi ddcfhfU'cb[ 'k ]h\ 'Ubmch\Yf'fY'Yj UbhXcW a YbhgŁhc ]bWi XY'Ug'Yj ]XYbWY hc'gi ddcfhmci f'YI hYbg]cb'Udd`]WUh]cb'' Zmci 'Ya U]`'9I hYfbU'`Gi ddcfhimci 'k ]`` Ui hca UhjWU'`mfYWY]j Y'U'hjW\_Yhbi a VYfžVi h]Zmci 'hY`Yd\cbY'mci 'k ]``bYYX'hc'gdYWJZWU``mUg\_'Zcf'cbY" Hi fb]hjb'U`gc'dfcj ]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'gfUh'g'cb'Hk ]hYf"

; YbYfU``mž'UggYgga YbhHUg\_g`a i ghVY`gi Va ]HYX`Y`YWfcb]WU``mj ]U`Y]H\Yf`Hi fb]h]b`cf`U`A ccX`Y Ugg][ ba YbH'`=b`]bgHUbWfg`k \YfY`H\]g`]g`bchdcgg]V`Yž`]hk ]```VY`gHUHYX`cb`mci f`Wci fgY**'**g`A ccX`Y`g]HY`k ]H\ U`HYfbUh]j Y`gi Va ]gg]cb`XYHU]`g"

: cf`]bZcfa Uh]cb`cb`\ck `hc`gi Va ]hUgg][ ba Ybhg`cb`]bY`j ]U`A ccX`Y.`\hhdg.##gh XYbh'i bgk "YXi "Ui #\ck! gi Va ]hUgg][ ba Ybha ccX`Y

# 5WUXYa ]W<cbYghmUbX`D`U[ ]Uf]ga

D`U[]Uf]ga `]g`i g]b[ 'H\Y`k cfXg`cf`]XYUg`cZcH\Yfg`UbX`dfYgYbH]b[ 'H\Ya `Ug`mci f`ck b"`=h\Wb`HU\_Y`a Ubm Zcfa gžZīca `XY`]VYfUHY`W\YUH]b[ 'hc`UWV]XYbHU``mWcdm]b[ 'Zīca `U`gci fW'`k ]H\ci hUW\_bck `YX[ Ya YbH'

I BGK '[fci dg'd`U[]Uf]ga ']bhc'h\Y'Zc``ck ]b[ 'WUhY[cf]Yg.

- i bXYfgHJbX'mci f`f][\hg`UbX'fYgdcbg]V]`]h]Yg`Ug`U`ghi XYbh'Uh'I BGK
- VY Uk UfY cZdU[]Uf]ga žWcdmf][ \lbzi BGK Ghi XYbh7 cXY cZ7 cbXi Wh0bX 5WW/dhUVY I gY cZ I BGK '=7 H'F Ygci fW/g'Dc']Wh
- VY Uk UfY cZh Y gHUbXUfXg cZVY Uj ]ci f YI dYWYX cZYj YfmcbY ]b h Y I BGK Wca a i b]m
- `cWUHY'gYfj ]WYg'UbX']bZcfa UHjcb'UVci hI BGK 'UbX'I BGK '@VfUfm

Gca YicZh\YgYiUfYUgik]``VYiZJa]`]Ufihcimci žich\Yfgik]``VYibYk"'; U]b]b[`Uigc`]Xii bXYfgHUbX]b[`cZU```h\Y fY`UhYXiUgdYWfgicZ9@=G9ik]``\Y`dimci ia U\_Yih\Yia cghicZmci fighi X]YgiUhil BGK"' <u>\hhd.#qi VYWfii]XYg"`]VfUfm"i bgk"YXi"Ui #Y`]qY#UVci hY`]qY</u> 5₩UXYa]W≢bZcfaUh]cb