

# **MDIA5005**

GdcftgžA YX]U UbX 7 i `h fY

HYfa 'C bY''##'&\$&\$

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

### 'GhUZZ'7cbhUWh'8YhU]`g'

'7cbj Ybcfg'

B Ua Y	9a U]`	5j U]`UV]`] <b>m</b>	@cWUh]cb	D\cbY
DYHYf F cVYftg	d""fcVYfhg4 i bgk "YXi "Ui	A cbXUmA ]XXUm! &"\$\$ d"a fbf Vm Uddc]bha YbhŁ	FcVYfh KYVgHYf 6i]`X]b[ž Fcca~&'%D	D`YUgY WcbHJWij]U Ya U]`"

#### GWXcc`7cbHJWh = bZcfa Uhlcb

Fcca " &ž`Yj Y`" FcVYfhK YVghYf'6i ]`X]b[

D\cbY.'f\$&E'-',)'(,)\*

9a U]`. 'gUa 4 i bgk "YXi "Ui

K YVg]hY. \hhdg.##gUa "Ufhg"i bgk "YXi "Ui

# 7ci fgY 8YHJ] g

### 7 fYX]hDc]bhg \*

## Gi a a UfmcZh\Y 7ci fgY

H\]g`Wci fgY`]bhfcXi WYg`ghi XYbhg`hc`h\Y`W`hi fU`z`dc`]h]WU``UbX`YVcbca ]Wfc`Y`d`UmYX`Vmgdcfhi[`cVU``m'`±\U]a g`hc`XYj Y`cd'h\Y]f`i bXYfghUbX]b[`cZh\Y`fc`Y`d`UmYX`Vmh\Y`a YX]U`]b`Wca a YfW]U`]g]b[`gdcfhiUbX`]b [`cVU`]g]b[`Ui X]YbWYg`Zcf`gdcfh''±ik]```U`gc`XYj Y`cd`ghi XYbhgfii bXYfghUbX]b[`cZgdcfhg`a YX]U`UbX`di V`]W fY`Uh]cbg`dfUWf]WY"

Hcd]\Wg`]bWi XY. 'h\Y`W `h fU`z`dc`]h]\WJ``UbX`Y\\cbca ]\Wfc`Yg`cZgdcfh\f(`cVU`)gYX`gdcfhg`UbX`gdcfhg Ui X]\Yb\Wrg\gdcfhg`ZJ\bg\bYk 'a YX]\U`]a d\U\\\g'cb`gdcfhg`fYdcfh]\b[`'UbX`di V`]\WfY`\Uh]cbg\f\gdcfhg`UbX\gdcfhg`UbX\gdcfhg`UbX\gdcfhg`UbX\di V`]\\WfY`\Uh]cbg\gdcfhg`Vf\UbX]\b[\z`dfca ch]cb`\UbX`a \Uf\_Yh]\b[\/UbX`fYgY\Uf\\\`UbX`]\bhYfj ]\Yk\hY\\\b]ei Yq`\Zcf`qdcfhg`k f]\h]\b["

## 7 ci fgY @YUfb]b[ 'Ci hWca Yg

%" 8 Ya cbglfUhY 'U'Wf]hJWU``i bXYfghUbX]b[ 'cZgdcfha YX]U'UbX'dfca chjcb" &" 8 Ya cbglfUhY 'U'Wf]hJWU``i bXYfghUbX]b[ 'cZgdcfhWca a i b]WUhjcb'[ YbfYg" ' " 8 Ya cbglfUhY dfUWhWD``g\_]``g']b'a i `hjdYY'[ YbfYg'cZWca a i b]WUhjcb

#### HYUW ]b[ 'GhfUhY[ ]Yg'

# 5ggYgga Ybh

.

6ch\ UggYgga Ybhg'A I GH'VY'gi Va ]hhYXzcf'mci 'k ]``Ui hca UhJWJ\`mZJ]\h\Y'Wci fgY"

@UHY`dYbU`hm) i dYf`XUmf]bWiX]b[ kYY\_YbXgŁ"

Zmci k ci `X``]\_Y hc X]gW gg h\Y UggYgga Ybhg ci hg]XY cZhi hcf]U`gž d`YUgY UhhYbX h\Y Wcbgi `hUh]cb h]a Y. A cbXUmgž A]XXUm! & \$\$da ""D`YUgY Ya U]` VYZcfY\UbX hc a U\_Y Ub Uddc]bha Ybh'

.

## 5ggYgga Ybh'HUg\_g'

5ggYgga Ybh'tUg_	K Y][ \h	8iY'8UHY	Gh XYbh@YUfb]b[ Ci hWca Yg 5ggYggYX
DfUWjWU``K fjhjb['HUg_'	) \$1	&\$#\$' #&\$&\$`\$(.\$\$`DA	%ž&
F YgYUfWX '9ggUm'	) \$1	&(#\$(#&\$&\$`\$(.\$\$`DA	%ž&

# 5ggYgga Ybh'8YhJ]`g

5ggYgga Ybh% DfUWhJWU`K f]hjb[ HUg\_

GHJfh'XUhY.

@Yb[h\.\*\*\\$\$!\%) \$\$\*k cfXg

8 YHJ]`g. '%) \$\$!k cfX`k f]h]b[ 'HJg\_": YYXVUW\_'dfcj ]XYX`j ]U`@A G"

5XX]h]cbU`XYhU]`g.

D`YUgY`gYY`AccX`Y`Zcf`XYHJ]`YX`]bgHfi Wh]cbg"`

Hi fb]hjb gYhjb[. `H\]g Ugg][ ba Ybh]g gi Va ]hhYX h\fci [\ `Hi fb]hjb UbX gh XYbhg Xc bchgYY Hi fb]hjb g]a ]`Uf]hmfYdcfhg"

5ggYgga Ybh'& FYgYUfW '9ggUm

GhUfh'XUhY.

@Yb[h\.'% \$\$!'&ž\$\$\$'k cfXg"

8 YHU]`g. "&\$\$\$ "k cfXg": YYXVUW\_'j ]U'@A G"

5XX]h]cbU`XYhJ]`g.

D`YUgY`gYY`AccX`Y`Zcf`XYHJ]`YX`]bghfi Wh]cbg"

Hi fb]h]b'gYh]b[.'H\]g'Ugg][ba Ybh]g'gi Va ]h\X'h\fci [\'Hi fb]h]b'UbX'gh XYbhg'Xc'bchgYY'Hi fb]h]b g]a ]`Uf]hmfYdcfhg"

# 5 https://bxubwww.Fyei]fYaYbhg

Ghi XYbhgʻUfYʻghfcb[`miYbWci fU[YX'hcʻUhhYbX'U```WUggYgʻUbX'fYj ]Yk '`YWhi fY`fYWcfX]b[g"

# 7ci fgY'GWXYXi `Y

# J]Yk 'WUgg'ha YHUV'Y

# H]a YtUV`Y

8UhY	HmdY	7 c bhYbh	
K YY_'% '%+': YVfi Ufm'! '&%	@YWhifY	@YWhifY.7cifgY`+bhfcXiWh]cb`UbX`cjYfj]Yk	
: YVfi Ufm		   9ggYbhJU`fYUX]b[ `fbYY``]b_g`]b`A ccX`YŁ	
		9 gg t bijo i t o x jb[ i g t t   jb_g   b A CCX 12	
		•	
	Hi hcf]U`	=") `\ci f`hi hcf]U`"	
		5 agceW; rcavgUf[a S V ahWch[W ž	
K YY_'&.'&( ': YVfi Ufm!'& : YVfi Ufm	@YWhi fY	@YWhifY. Ebach[`Y? WYSŽ7hWife	
		9ggYbhJu``F YUX]b[g`fl]b_g`]b`A ccX`YŁ	
	Hi hcf]U`	=") '\ci f'h hcf]U`"	
		E baď[`Y? WSŽ7hW fe	
K YY_" . & A UfWX ! * A UfWX	@YWhifY	@YWhi fY. 7 f]g]g 7 ca a i b]WUh]cb UbX Gdcfhg	
		9ggYbhJU``F YUX]b[g'fl]b_g']b'A ccX`YŁ	
	Hi hcf]U`	=") '\ci f'h hcf]U`"	
		7 f]g]g·7 ca a i b]WUh]cb·UbX·Gdcfhg·	
K YY_'(.'-'A UfWX'!'%' A UfWX	@YWhi fY	@YWhifY. 'Gdcfhgž'A YX]U 'UbX'h\Y'a U_]b[ 'cZ7Y`YVf]hm	
/		9ggYbhjU``FYUX]b[g`fl]b_g`]b`A ccX`YŁ	
	GYa ]bUf	Hi hcf]U`.'%') '\ci fg	
		GdcffgžA YX]U`UbX`h\Y`a U_]b[ `cZ7Y`YVf]mi	
K_YY_') . '%* 'A_UfW\'! '&\$	@YWhifY	@YWhi fY. Ebacfel 9 W VWdS`V E WjgS{fk	
A UfVX			
		9ggYbhJU``F YUX]b[g`fl]b_g`]b`A ccX`YŁ	
		0//\	
	Hi hcf]U`	%") '\ci f'hi lcf]U'"'	
		E badfeł 9 W VWdS`V E W gS (fk	
K YY_'*.'&' 'A UfWX'!'&+ A UfWX	@YWhi fY	@YWH fY. "Ebadfi? WW[SS"V fZWSdfaX>W\$VWdeZ[b	
		9ggYbh]U`FYUX]b[g`fl]b_g`]b`A ccX`YŁ``	

1		·	
	Hi hcf]U`	%") '\ci f'hi hcf]U`"'	
		Ebadi? WW[SS`VfZWSdfaX>WSVWdeZ[b	
K YY_'+." \$'A UfW\'!" 5df]`	@YVVi fY	<b>@YWi fY</b> . '8S` Va_ [` fZW6[Y[fS^3YW'	
		9ggYbh]U``F YUX]b[g`fl]b_g`]b`A ccX`YŁ``	
	Hi hcf]U`	%") '\ci f'h hcf]U`	
		8S` Va_ [`fZW6 [Y[fS^3YW	
K YY_', .'*'5df]`'!'%\$'5df]`	@YWn fY	@YWhifY. 4ge[ Wee aXE badf [ fZWV[edgbf[hWSYW	
		9ggYbfjU``FYUX]b[g`fi]b_g`]b`AccX`YŁ```	
	Hi hcf]U`	%") '\ci f'hi hcf]U`"'	
		4ge[`Wee aXE badf`]b`h\Y`X]gfi dh]j Y`U[ Y	
K YY_''% '5df]`'!'%+ 5df]`	FYUX]b[	5 'fYUX]b[ 'k YY_z']b'k \]W\'mci 'k ]``'VY'YI dYWYX'hc k cf_'cb'U'XfUZhcZ5ggYgga Ybh'&z'k \]W\'k ]``'VY X]gW ggYX']b'h\Y'hi hcf]U'g'cZk YY_'%\$"'Bc'`YWi fYg'cf WUggYg"'	
K_YY_"%\$."&\$"5df]`"!"&( 5df]`	@YWnifY	>WUfgdW, FZW3VhW faX>[Wefk WE badfe	
	Hi hcf]U`	%") '\ci f'hi hcf]U`"	
		FZW3VhW faX>[Wefk WE badfe	

# FYgci fW/g

DfYgWf]VYX F Ygci fWYg

DfYgWf]VYX F Ygci fWYg

BchY. h\Y'Zc``ck]b[ 'dfYgWf]VYX'fYgci fWYg'UfY'Y!Vcc\_g'Uj U]`UV`Y'Zfca 'h\Y'I BGK '`]VfUfm

 $<ihWX]bgž6"`UbX`FckYž8"`f&$\%( \pm Ebadf 4Wka`VFWWh[e[a`,FZW;`fWd Wh 6[Y[fS^? WW[SS`VfZWD[eWaX@Wf ad] WW? WW[SEbadf"@cbXcb.Fci hYX[Y] WW[SEbadf"]$ 

#### FYWca a YbXYX FYgci fWyg

Ch\YffYWca a YbXYX fYgci fWYg ]bWi XY.

 $5bXfYk\ gžD"'f\&\$\$)\ E\ badfe\ \ \ agd\ S'[e\_\ ,\ S\ bdSUf[US^[\ fdaVgUf[a\ `\ @cbXcb\#I\ ci\ gUbX'C\ U\_g\#BYk\ `8Y`\ ]. \ `GU[\ Y\ Di\ V\ ]WUflcbq$ 

6cmYžF "'UbX' < UmbYgžF 'f&\$\$-ŁBai WdB'Sk, 'Ebadf FZW? WW[S S` V Babg'Sd5g'fgdWfgYWcbX'YX]h]cbŁ 9X]bVi f[\'I b]j Yfq]mmDfYgq

 $\label{thm:ckyz8} F\ ck\ Y\ z\&\$(\ E\ 5\ df[US^dMSV[\ Ye,\ ebad\ Ug\ fgdWS\ V\ fZW\_\ WW[S\ A\ U]XYb\ YUX\ z\ 6Yf\_g\ ]fY.\ C\ dYb\ I\ b]j\ Yfg]hm\ DfYgg$ 

#### 7 ci fgY 9j U`i Uhcb UbX 8Yj Y`cda Ybh

H\]g`Wci fgY`k]``VY`Yj U`i UhYX`j ]U`h\Y`A m9I dYf]YbWY`gi fj Ymž'UbX`h\fci [\`]bZcfa U``ZYYXVUW\_`]b`WUgg"`5g`U fYgi `hcZZYYXVUW\_`]b`dfYj ]ci g`mYUfgž'k Y`\Uj Y`UXUdhYX`h\Y`Wci fgY`hc`]bWi XY`a cfY`ZJWY!hc!ZJWY WcbHJWh

Gi Va ]gg]cb cZ5ggYgga YbhHUg\_g

Gi Va ]gg]cb cZ5ggYgga YbhHUg\_g

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

Zmci YbWcYjbhYffbWidfc'kKYai dkdxxbWthYa dhjb['hc'gi Va ]hmci f'Ugg][Y]M\_YWbhbafkb[ih'Hi fb]hjbžd'YUgh Z``Gi ddchU hY`Yd\cbY'9| hYfbU``Gi ddcfhcb'-',)'''' %cf'Ya U]``h\Ya 'cb'Y| 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'mYUft''=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'm'Zcf'Ub'Y| hYbg]cbžVi hmci a i ghfYhJ]b'mci f'hjW\_Yhbi a VYf'Zfca '9| hYfbU``Gi ddcfhfU`cb['k]h\'Ubmch\Yf'fY`Yj UbhXcW a Ybhgt'hc ]bWi XY'Ug'Yj ]XYbW'hc'gi ddcfhmci f'Yl hYbg]cb'Udd`]WJhjcb''=Zmci 'Ya U]``9| hYfbU``Gi ddcfhmci 'k]``

#### 5 WUXYa ]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"'=hWJb'hU\_Y`a Ubm Zcfa gžZfca `XY`]VYfUhY`W\YUh]b[ 'hc`UWW]XYbhU`mWcdm]b[ 'Zfca `U`gci fWY'k ]h\ci hUW\_bck `YX[ Ya Ybh'

IBGK [fcidgdu[]uf]ga ]bhch\YZc``ck]b[ WuhY[cf]Yg.

7 cdm]b[.'i g]b['h\Y'gUa Y'cf'j Yfmg]a]`Uf'k cfXg'hc'h\Y'cf][]bU`hYl h'cf']XYU'k]h\ci h'UW\_bck `YX[]b['h\Y gci fW'cf'i g]b['ei chUh]cb'a Uf\_g"'H\]g'U`gc'Udd`]Yg'hc']a U[Ygž'Ufh'UbX'XYg][b'dfcYWgž'Ug'k Y``'Ug dfYgYbhUh]cbg'k\YfY'gca YcbY'dfYgYbhg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h'

=\uddfcdf]UhY 'dUfUd\fUg]b[ .'7\Ub[ ]b[ 'U'ZYk 'k cfXg'UbX'd\fUgYg'k \]'Y 'a cghmfYhJ]b]b[ 'h\Y'cf][ ]bU`
ghfi Whi fY 'UbX#cf'dfc[ fYgg]cb'cZ]XYUg'cZh\Y'cf][ ]bU`ž'UbX']bZcfa Uh]cb'k ]h\ci h\UW\_bck `YX[ Ya Ybh''H\]g'U`gc
Udd`]Yg']b'dfYgYbhUh]cbg'k \YfY 'gca YcbY'dUfUd\fUgYg'Ubch\Yf'g']XYUg'cf'k cfXg'k ]h\ci h\UhYX]hUbX'hc
d]YW]b[ 'hc[ Yh\Yf'ei chYg'UbX'dUfUd\fUgYg']bhc'U'bYk 'k \c`Yž'k ]h\ci h\Uddfcdf]UhY'fYZYfYbW]b[ "

7 c``i g]cb.'k cf\_jb['k]h\ch\Yfg'Vi hdUgg]b['cZZh\Y'k cf\_'Ug'U'dYfgcb'g']bX]j ]Xi U``k cf\_"'7 c``i g]cb'U`gc ]bWi XYg'dfcj ]X]b['mci f'k cf\_'hc'Ubch\Yf'ghi XYbhVYZcfY'h\Y'Xi Y'XUhYžcf'Zcf'h\Y'di fdcgY'cZh\Ya d`U[]Uf]g]b['UhiUbmh]a Yž'dUm]b['Ubch\Yf'dYfgcb'hc'dYfZcfa 'Ub'UWUXYa ]WhUg\_ž'ghYU']b['cf'UWei]f]b[ Ubch\Yf'dYfgcb'g'UWUXYa ]Wk cf\_'UbX'Wcdm]b[']hz'cZYf]b['hc'Wca d'YhY'Ubch\Yf'dYfgcb'g'k cf\_'cf'gYY\_]b[ dUma YbhZcf'Wca d'Yh]b['UWUXYa ]Wk cf\_"

±bUddfcdf]UhY`W]hUh]cb.`7]h]b[`gcifWrg`k\]W\`\UjY`bchVYYb`fYUXžk]h\cihUW\_bck`YX[]b[`h\Y`´gYWcbXUfm´gcifWrZfca`k\]W\`\_bck`YX[Y`cZh\Ya`\Ug`VYYb`cVhU]bYX"

8 i d`]\W\n]cb`ffgY`Z\d`U[]\Uf]ga "Ł`gi Va]\n]b[`mci f`ck b`k cf\_z`]b`k \c`Y`cf`]b`dUffz`k \YfY`]h\Ug`dfYj]ci g`m VYYb`dfYdUfYX`cf`gi Va]\nYX`Zcf`Ubch\Yf`UggYgga Ybhcf`\\cf\\text{i fgY`UhI\_BGK\_`cf`Ubch\Yf`i b]j Yfg]\m'

7 cffYWnfYZYfYbWlb[ 'dfUWnWyg.

- DUfUd\fUg]b[žgi a a Uf]g]b[žYggUmk f]h]b[ 'UbX h]a Y a UbU[Ya Ybh
- 5ddfcdf]UhY'i gY'cZUbX'Uhtf]Vi h]cb'Zcf'U'fUb[Y'cZa UhYf]U`g']bWi X]b['hYl hž']a U[Ygž'Zcfa i `UY'UbX WbWYdhg"

±0X]j ]Xi U``Ugg]ghUbWr`]g`Uj U]`UV`Y`cb`fYei YghZfca `H\Y`@YUfb]b[ `7 YbhY`f\hd.#k k k "`Wi bgk "YXi "Ui #£" Gh XYbhg`UfY`U`gc`fYa ]bXYX`h\UhWUfYZ ``ha Ybu[ Ya Ybh]g`Ub`]a dcfhUbhdUfhcZgh XmUbX`cbY`cZh\Y ]XYbh]Z]YX`WUi gYg`cZd`U[ ]Uf]ga `]g`dccf`h]a Y`a UbU[ Ya Ybh'`Gh XYbhg`g\ci `X`U``ck `gi Z]W]Ybh'h]a Y`Zcf fYgYUfW\žXfUZh]b[ `UbX`dfcdYf`fYZYfYbW]b[ `cZgci fWfg`]b`dfYdUf]b[ `U``UggYgga Ybh']hYa g"

IBGK @]VfUfmU`gc`\Ugʻh\Y`9@G9`hcc``UjU]`UV`Y`hc`Ugg]ghmci`k]h\`mcif`ghiXmUhIBGK "'9@G9`]gXYg][bYX`hc`]bhfcXiVW`bYk`ghiXYbhg`hc`ghiXm]b[`UhIBGK`Vih]hWUb`U`gc`VY`U`[fYUhfYZfYg\Yf`Xif]b[`mcifqhiXm"

7 ca d'Yhlb[ 'h\Y'9@&9'hi hcf]U`'UbX'ei ]n'k ]`'YbUV'Y'mci 'hc.

 UbU`mgY`hcd]\Mgž'd`Ub`fYgdcbgYg`UbX`cf[Ub]gY`fYgYUf\W\`Zcf'U\WXYa]\Wk f]hjb[`UbX`ch\Yf UggYgga YbhiHUg\_g • i bXYfgHJbX'mci f'f][\hg'UbX'fYgdcbg]V]`]h]Yg'Ug'U'gh XYbh'Uhil BGK

# 5WUXYa]W = DZcfa Uh]cb

: cf`YggYbhJU``gh XYbh`]bZcfa UhJcb`fY`UhJb[ 'hc.

- fYei Yghg Zcf Yl hYbg]cb/
- `UhY`gi Va ]gg]cbg`[ i ]XY`]bYg/
- fYj ]Yk 'cZa Uf\_g/
- I BGK '<YU`h\ 'UbX'GUZYhm'dc`]W[Yg/
- YI Ua ]bUh]cb dfcWXi fYg/
- gdYWJU``Wcbg]XYfUhJcb`]b`h\Y`Yj YbhcZ]``bYgg'cf'a ]gUXj Ybhi fY/
- gh XYbhYei ]hmUbX X]gUV]`]hm/
- ÜbX'ch\Yf'YggYbhJU`'UWUXYa ]W]bZcfa UhJcbž'gYY

\hdg.#k k k "Ufng"i bgk "YXi "Ui #W ffYbhghi XYbhg#UWUXYa ]W]bZcfa Uhlcb#dfchcWc`g![i]XY`]bYg#

.