



# MDIA3008

ggi Yg'UbX'7 f]g]g'7 ca a i b]WU]cb

HYfa 'Hk c''##'&\$&\$



GWcc''cZHAY'5ftg'UbX'A YX]U''##'I BGK ''5ftg'UbX'GcWU''GWYbWg



7 ci fgY'8YHJ]`g

7 fYX]hDc]bHg`\*`

Gi a a UfmcZhY'7 ci fgY

Gi VYWh5fYU.`? VW[S

H\]g`Wci fgY`Yi Ua ]bYg`hY` ]bHfX]gWd` ]bUfmUbX`fY`Uh]cbU`bUhi fY`cZ]ggi Yg`UbX`Wf]g]g`Wca a i b]WU]cb  
Zfca`WcbWV`dhi U`UbX`dfUW]WU`dYfgdYW]j Yg"

ggi Yg`a UbU[ Ya Ybh]g`U`a UbU[ Yf]U`dfcW`gg`h`UhUWg`hc`dfcj ]XY`U`fYgdcbgY`ghfUH[ mUbX`YUf`mk Ufb]b[  
hc`c`Zcf]ggi Yg`h`Uh`Uj Y`h`Y`dc`h`bh]U`hc`ja dUW`icf[ Ub]gU]cbg`"H\Y`gi W`V`ggZ`a UbU[ Ya Ybh]cZ]ggi Yg  
fYXi W`g`h`Y`\_Y`]\ccX`cZ`Wf]g]g`7 f]g]g`a UbU[ Ya Ybh]g`h`Y`fY`Uh`X`dfcW`gg`]bj`c`j ]b[ `h`Y`XYj Y`cda YbhUbX  
Udd`]WU]cb`cZ`ghfUH[ ]Yg`U]a YX`Uh`Y`d]b[ `Ub`c`f[ Ub]gU]cb`gi W`V`ggZ`mXYU`k ]h`U`gi XXYb`UbX`bY[ Uh] Y  
Yj Ybh`

ggi Yg`UbX`Wf]g]g`Wca a i b]WU]cb`fYZfg`hc`h`Y`DF`!gdYW]Z`WdfUW]Wg`h`UhYa Yf[ Y`Zfca`h`YgY`dfcW`ggYg"

H\fc[ ]`U`fU]b[ Y`cZ`WUgY`gh`X]YgZ`h`]g`Wci fgY`k ]`Yi d`cfY`ck`]ggi Yg`UbX`Wf]g]g`ja dUW`i`dcb  
cf[ Ub]gU]cbg`UW`cgg`h`Y`Vi`g]bYggZ`Wca a i b]mZ`[ c] Yfba YbZ`UbX`bch`Zc`f]dfcZ]hgYW`c`fgZ`UbX`k ]`Yb[ U[ Y`]b  
XYd`h`k ]h`h`Y`fc`Y`cZ]ggi Yg`UbX`Wf]g]g`a UbU[ Ya YbhUbX`Wca a i b]WU]cb`]b`ghfUH[ ]Wd`Ubb]b[ "

7 ci fgY`@YUfb]b[ `Ci hWca Yg

%`7 cbW`dhi U`]gY`h`Y`g][ b]Z`WU]bW`UbX`Z`bW]cbg`cZ]ggi Yg`UbX`Wf]g]g`Wca a i b]WU]cb`]b`Ub  
cf[ Ub]gU]cbU`gYh]b[ "  
&`Dfcj ]XY`XYH]YX`UbU`mgYg`cZ]ggi Yg`UbX`Wf]g]g`Wca a i b]WU]cb`UhU`WcbW`dhi U`UbX`ghfUH[ ]WYj Y`  
'`" I`bXYfg`h`UbX`h`Y`\_Y`midf]bW]d`Yg`VY`\]bX`XYg][ b]b[ `UbX`XYj Y`cd]b[ `U`Wf]g]g`Wca a i b]WU]cb`d`Ub`  
(`H\]b`\_`ghfUH[ ]WU`mUVci h`h`Y`fc`Y`#`cZ] Uf]ci g`di V`]W]g`UbX`ghU`\_Y`c`XYfg`]b`]ggi Yg`Wf]g]g`  
Wca a i b]WU]cb`WUgYg`  
)`5ggYgg`UbX`Yj U`i`UH`h`Y`ja dUW`icZ`h`Y`a`YX]U`]b`]ggi Yg`UbX`Wf]g]g`Wca a i b]WU]cb`]b`Ub`]b]XYd`h`  
Z]g\]cb"

HYUW]b[ `GhfUH[ ]Yg`

H\]g`]g`U`Yj Y`h`fY`Wci fgY`" `hVi ]Xg`cb`g\_]`g`XYj Y`cdYX`]b`Yj Y`%`UbX`&`Wci fgYg`" `hik ]`U`ck`gh`XYbhg`hc`  
XYj Y`cd`X]j YfgY`WcbW`dhi U`UbX`ghfUH[ ]Wg\_]`g`]b`DF`UbX`dfcZ]gg]cbU`dfUW]WV"

6ch`Y`Wh`fYg`UbX`h`hc]f]U`g`k ]`VY`cdYb`hc`X]U`c[ i Y`UbX`Wc`UVcfUH]cb`k ]h`h`Y`U]a`cZYI`d`cf]b[ `WUgY`  
gh`X]Yg`UbX`a`UHf]U`]b`U`dfcXi`W]j Y`UbX`f][ cfc] g`Z]g\]cb"

H\]g`Wci fgY`]g`BC`H`UVci hfch`Y`Ufb]b[ žVi hfUH`Yf]b]c`j Yg`UW]j Y`m`h`]b\_]b[ `UVci`h`UbX`Yb[ U[ ]b[ `k`]h`U`  
bi`a`VYf`cZ`WcbW`dhi U`Z`Ua`Yk`cf`\_`gZ`dfcZ]gg]cbU`g\_]`gZ`WUgY`gh`X]YgZ`UbU`m]WU`a`UHf]U`Z`UbX`ghfUH[ ]W`  
d`Ub`g`"Gh`XYbhg`UfY`Yi`dYW`YX`hc`h`U`\_Y`Wcbf`c`cZ`h`Y`f`ck`b`Y`Ufb]b[ žfUH`Yf`h`Ub`dUgg]j Y`m`Yi`dYW`h`  
]bZ`fa`Uh]cb`hc`VY`XY`j] YfYX`hc`h`Ya` "

5ggYgga Ybh


]bXi gfrn'

Mci 'UfY'UXj ]gYX'hc'WccgY'mci f'ei Ygh]cb'k ]h'WfYžUg'h'YmdcgY'X]ZYfYbhWU'Yb[ Yg''

Mci 'Wb'hU\_Y'h'Y'dYfgdYW]j Y'cZUbmcf[ Ub]gUh]cbž'cf'di V]Wk \c'k Yfy'UZYW'X'Xi f]b[ 'h'Y'dUbXYa ]W

5ggYgga Ybh7 f]h'f]U.

UgdYWg'cZhY'jggi Y#V]g]g3'

' "5bU'mg]g# YWta a YbXU]cbg. 'K \UhUfY'hY'\_Ymia ]ghU\_Yg'UbX#cf'\_Ymgi WYggYg'k ]h'fY[ UfXg'hc'hY  
Wta a i b]W]h]cbg'ghfU] [ m3' <ck 'W]b'mci 'gi VghU]bh]U]h' mci f'UbU'mg]g3'K \Uhk ci 'X'mci 'fYWta a YbX3'K \Uh  
UfY'mci f']bg][ \hg3' <ck 'W]b'mci 'gi ddcf'h'mci f'Z]bX]b[ g'k ]h'fY'Yj Ubh'fYgYUfVX 'UbX#cf'h'YcfY]h]W]  
ZUa Yk cf\_g3'

('7cbWi g]cb. 'K \UhUfY'hY'\_Ymidc]bhg#Uf[ i a Ybhg'mci 'k Ubh'hc''YUj Y'k ]h'mci f'Ui X]YbW3'

K cf\_]b[ ']b'U'ga U''[ fci d'k ]''VY'U'Wta a cb'UW]j ]hmZcf'k cf\_]b[ ']b'hY'Wta a i b]W]h]cbg#DF ']bXi g]fm'5'\_Ym

WXUfUWVf]gY`W]gYg`UbX`]ggi`Yg" `H\YgY`WUgY`gh`X]Yg`k`j`VY`XfUk`b`Zca`UWV`U`Yj`Ybfg`UbX`k`j`Uj`Y`  
cWV`ffYX`k`]h.]b`h`Y`dUgh`k`c`m`Ufg"

5`gi`[`[`Ygh`X`Zcfa`Uh]g`Ug`Z`ck`g.

fZdagYZagf\hY`WŁi fgYžUbX`\_YmUgdYWg`k ]`VY`X]gW ggYX`Xi f]b[ `hY`YWŁi fYg"Gca Y`i gYZ `fYgci fWg`k ]`  
U`gc`VY`Uj U]UVY`cb`A ccX`Y"

f`9UW`dU]f`g\ci `X`gi Va ]hCB9`7f]g]g`7ca a i b]WŁhcb`D`Ub`Łc`Hi fb]h" `H\Y`ch\Yf`ghi XYbhg\ci `X`g]a d`m  
gi Va ]hCB@MU`WŁj Yf`dU[ Yžk ]h`VUg]W]bZ`fa U]cb`gi W`Ug`mci f`bUa Yžghi XYbhbi a VYfž`UbX`hY`XYhU]`g  
cZmci f`dUf`bYf"

5ggYgga Ybh7f]hYf]U`f7 f]g]g`7ca a i b]WŁhcb`D`UbŁ

`



5 HbXUbW F Yei ]fYa Ybhg

Gh XYbhg UfY ghfc b [ mYbWci fu [ YX hc UHbX U WUggYg UbX fyj ]Yk YWfi fy fYWcfX]b [ g"

7 ci fgY GWXYXi `Y

[J Yk WUgg ha YhUVY](#)

Hja YhUV Y`

8UhY	HmdY	7cbHYbh
K YY_%>%>i bY!)`>i bY	@YWi fY	hfcXi Wjcb`hc`jggi Yg`UbX`Wjg]g`Wca a i b]Wjhcbg
	Hi hc]U`	hfcXi Wjcb`hc`ggi Yg`UbX`7f]g]g`7ca a i b]Wjhcbg
K YY_&. ;`>i bY!`%&>i bY	@YWi fY	7ca a i b]Wjhcb [ `]b`Wjg]g`hc`ghU`Y\c`XYfg
	Hi hc]U`	7ca a i b]Wjhcb [ `]b`Wjg]g`hc`ghU`Y\c`XYfg
K YY_".`%)`>i bY!`%>i bY	@YWi fY	l`h`]g]b [ `ZUa Yg`UbX`_Ymia YggU [ Yg
	Hi hc]U`	l`h`]g]b [ `ZUa Yg`UbX`_Ymia YggU [ Yg
K YY_(.`&&>i bY!`&*>i bY	@YWi fY	C f [ Ub]gU]hcbU`Wjg]g`Wca a i b]Wjhcbg`
	Hi hc]U`	C f [ Ub]gU]hcbU`Wjg]g`Wca a i b]Wjhcbg`
K YY_)`.&-`>i bY!`" `>i`m	@YWi fY	7f]g]g`Wca a i b]Wjhcb`d`Ubb]b [ `
	Hi hc]U`	7f]g]g`Wca a i b]Wjhcb`d`Ubb]b [ `
K YY_*.`*`>i`m!`%\$`>i`m	@YWi fY	Bc`YWi fY!`F 958`B; `K 99?`
	Hi hc]U`	Bc`h hc]U`g!`F 958`B; `K 99?`
K YY_+.`%`>i`m!`%+`>i`m	@YWi fY	H\YcfYh]W`ZUa Yk cf_g.`F H/`G77H`
	Hi hc]U`	H\YcfYh]W`ZUa Yk cf_g.`F H/`G77H`
K YY_).`&\$`>i`m!`&(`>i`m	@YWi fY	<YU`h`7f]g]g`7ca a i b]Wjhcbg
	Hi hc]U`	<YU`h`7f]g]g`7ca a i b]Wjhcbg
K YY_-.`&+`>i`m!`" `%>i`m	@YWi fY	H\Y`hYfbYhUbX`gcW]U`a YX]U
	Hi hc]U`	FZW;`fWd`Wf`S`V`EaU[S`^?`W]S
K YY_%\$.`" `5i [i gh!`+5i [i gh	@YWi fY	@YUXYfg\]d`UbX`h\Y`bUhi fY`cZhfUbgVci bXUfmW]gYg
	Hi hc]U`	@YUXYfg\]d`UbX`h\Y`bUhi fY`cZhfUbgVci bXUfmW]gYg

# F Ygci fWg

## DfYgWf]VYX`F Ygci fWg`

- K YVg]hY`-F Ygci fWg`k ]`VY`Uj U]UV`Y`cb`hY`7ci fgY`A ccX`Y`k YVg]hY`
- C b`]bY`h hcf]Ug`!`j ]U`hY`6`UW\_VcUfX`7c`UVcfUHY`@A`G`

## F YWca a YbXYX`F Ygci fWg

: i fhYf F YUX]b[

5`dUg`Ub`7`YhU`ž&\$\$-ž`7`cfdcfUHY` ; cj YfbUbWV`]b`hY`7`cbhY`hcZ7`f]gYg. Hck UfXg`U`GfU`\_Y`c`XYf`H`Ycfm`cZ7`f]g]g`A`UbU[ Ya Ybhž`<agd`S`^aX5a`f[`YW`U]W`~`5`d[e]e`?`S`SYW`\_`W`fž`%`+`ž`f`%`:`dd` ,`!`-`(-`"

7`cca`Vgž`K`"H`"/`<`c`UXUnž`G`">`"f`P`Xg`"ž`ž`&\$\$`%`ž`F`Z`W`:`S`V`Taa`]`a`X5`d[e]e`5`a`\_`\_`g` [USf[a`ž`YX]hY`X`VmiA`U`XYbž`A`5`:`6`UW`k`Y`"

; U`ck`Umž`7`"/`?`k`UbUg`!`5`]Xccž`?`"ž`ž`&\$\$-ž`BgT`[U`D`W`S`f[a`e` ;eegW`e`S`V`5`d[e]e`?`S`SYW`\_`W`fž`A`Y`Vci`fbY. H\ca`gcb`GcW]U`G`W]YbW`DfYgg

; ]d]bž`8`"F`"/`A`i`fd`mž`D`">`ž`ž`&\$\$,`ž`5`d[e]e`?`S`SYW`\_`W`f[`S`5`a`\_`b`W]`I`adVž`C`I`ž`c`f`X`:`C`I`ž`c`f`X`:`I`b]j`Yfg]hm`DfYgg

; f]Z]bž`5`"ž`ž`&\$\$-ž`@W`E`fd`S`f`W`[W`e`X`d`D`W`b`g`f`S`f[a`?`S`SYW`\_`W`f,`9`S`[`Y`5`a`f`cb`^`a`X`;eegW`e`5`d[e]e`S`V`5`ad`b`a`d`S`f`W`e`a`U`[S`^`D`W`e`b`a`e`[T`[f`k`ž`@`c`b`X`c`b`.`?`c`[`Ub`DU`[`Y`

<YU`h`ž`F`"/`DU`Y`b`W`U`f`ž`A`">`ž`ž`&\$\$,`ž`E`fd`S`f`W`[U`;eegW`e`?`S`SYW`\_`W`f,`A`d`S`[e`S`f[a`e`S`V`BgT`[U`Ba`[U`k`5`Z`S`^`W`Y`W`e`[`&`b`X`Y`X]h`c`b`ž`7`U`]ž`c`f`b]U`ž`H`ci`g`Ub`X`C`U`\_`g`:`GU`[`Y`

<YU`h`ž`F`"@`/`C`<U]fž`<`8`"f`P`Xg`"ž`ž`&\$\$-ž`:`S`V`Taa`]`a`X`D`[e]`S`V`5`d[e]e`5`a`\_`\_`g` [USf[a`ž`BYk`M`c`f`\_`F`ci`h`Y`X`[`Y`

<ck`Uf`X`ž`7`"ž`%` ,`(`ž`;eegW`e`?`S`SYW`\_`W`f,`A`d`Y`[`e`a`X`f`Z`W`X`g`f`g`d`W`ž`G`H`U`a`ž`c`f`X`ž`7`H`:`e`g`g`i`Y`5`W]c`b`Di`V`]g`Y`f`g`

>Uei`Ygž`H`"ž`ž`&\$\$(`ž`;eegW`S`V`5`d[e]e`?`S`SYW`\_`W`f,`7`j`b`^`d`Y` ;eegW`e`5`d[e]e`W`e`D`[e]`S`V`D`W`b`g`f`S`f[a`ž`G`ci`h`A`Y`Vci`fbY`ž`J`]W`c`f]U`:`C`I`ž`c`f`X`:`I`b]j`Yfg]hm`DfYgg

F`Y`[`Y`g`h`f`ž`A`"/`@`U`f`\_`]bž`>`ž`ž`&\$\$,`ž`D`[e]` ;eegW`e`S`V`5`d[e]e`?`S`SYW`\_`W`f`[`BgT`[U`D`W`S`f[a`e,`3`5`Se`W`T`aa`]`a`X`4`W`e`f`D`c`S`U`f`[U`W`ž`(`h`Y`X]h`c`b`ž`@`c`b`X`c`b`.`7`-`D`F`

H`c`h`ž`9`"@`f`P`X`"ž`ž`&\$\$`+`ž`F`Z`W`8`g`f`g`d`W`a`X`7`j`U`W`^`W`U`W`[`BgT`[U`D`W`S`f[a`e`S`V`5`a`\_`\_`g` [USf[a`?`S`SYW`\_`W`f,`5`Z`S`^`W`Y`W`e`X`d`f`Z`W`@`W]`f`9`W`W`d`S`f[a`ž`BYk`!`>Yfg`Y`m`@`U`k`f`Y`b`W`9`F`V`U`i`a`5`g`g`c`W]U`H`Y`g`

M`ci`b`[`ž`?`ž`ž`&\$\$`ž`9`b`U`b`W]b`[`Ya`d`c`m`Y`W`ca`a`i`b]W]h`c`b`V`Y`U`j`]c`f`g`ž`c`f`g`Y`b`g`Y`a`U`\_`]b`[`Ub`X`g`Y`b`g`Y`[`j`]b`[`]b`W]g]g`g]h`U]h`c`b`g`ž`>ci`fb`U`c`Z`7`ca`a`i`b]W]h`c`b`A`UbU[ Ya Ybhž`&&ž`f`(`L`dd`(`)%`-`(`+`)"

## F YWca a YbXYX`Di V`W]h`c`b`g

3e[S`BSU`[X]U`BgT`[U`D`W`S`f[a`e`<agd`S`^`

<agd S^aX4ge[ Wée 5a\_\_g` [USf[a`

<agd S^aX4ge[ Wée 7fZ[Ue

<agd S^aX5a` f[ YW U[Wé S` V 5 d[e[e ? S` SYW\_ W f

<agd S^aX5a\_\_g` [USf[a` ? S` SYW\_ W f

<agd S^aXBgT[U DWSf[a` e DWéWsdJZ

BgT[U DWSf[a` e DWé[W

f`H\]g`]g`U`]ghcZgi dd`Ya YbUfmiFYUX]b[ `fYgci fWgžk \]W`a UmVY`Y`dZ` `]b`Xc]b[ `Z`fH`Yf`fYgYUfW`" Mci  
UfYžcZVéi fgYžYbVéi fU[ YX`hc`a`cj`Y`VYmcbX`h`YgY`gi [ [ YghX`h`I`hg"

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

Mci f`ZYXVUW\_[ UH`YfYX`Zca`h`Y`gi fj Ymg`Uhih`Y`YbX`cZ`h`Y`gYgg]cb`cZYfg`j U`i UV`Y`]bdi H`Mci f  
YI dYf]YbW`g`UbX`gi [ [ Ygh]cbg`UfY`]a dcfUbtž`UbX`h`YfY`]g`U`k Umg`fcca`ž`f`]a dfcj Ya Ybh]b`h`fa`g`cZ  
Vé`b`h`bh`UbX`h`UWX]b[ `g`f`U`h`[ `]Yg`"

Gi Va ]gg]cb 'cZ5ggYgga YbhiHUg\_g

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

≠mci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UH'Ya dh]b[ 'hc'gi Va ]hirci f'Ugg][ ba Ybhi'fci [ \ 'Hi fb]h]bž'd'YUgY  
HY'Yd\cbY'9I HYfbU'Gi ddcfhcb'- ' , ) " ' ' %cf'Ya U] 'h'Ya 'cb'YI HYfbU'HY'gji ddcfh4 i bgk "YXi "Ui "'Gi ddcfh

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

D`U[ ]Uf]ga `]g`i g]b[ `hY`k cfXg`cf`]XYUg`cZc`hYfg`UbX`dfYgYbh]b[ `hYa `Ug`mci f`ck b" `#WUb`hU`Y`a Ubm  
Zcfa gZ`Zca `XY`]VYfUHY`WXYUH]b[ `hc`UWV]XYbhU`mWc`dm]b[ `Zca `U`gci fW`k ]h`ci hUW`bck `YX[ Ya Ybh`

I BGK `[ fci dg`d`U[ ]Uf]ga `]bhc`hY`Zc`ck ]b[ `WUHY[ cf]Yg.

7 cdm]b[ .`i g]b[ `hY`gUa Y`cf`j Yfmg]a ]Uf`k cfXg`hc`hY`cf][ ]bU`hYI hcf`]XYU`k ]h`ci hUW`bck `YX[ ]b[ `hY



