



ARTS2020

7 fYUhj Y`K f]hb[

HYfa `H\fYY`##`&\$%-



7 ci fgY`Cj Yfj]Yk

`GHUZZ7cbhUWhi8YHU]`g`

`7cbj Ybcfg`

B Ua Y	9a U]`	5j U]UV]]m	@cWU]cb	D\cbY
DUi ``8Uk gcb	dUi ``XUk gcb4 i bgk "YXi "Ui	VmUddc]bħa Ybh	F cVYfh K YVghYf`&%	- ' ,) `&&&\$

GW\cc``7cbhUWhi`bZcfa Uh]cb

F cca " ` %&ž`Yj Y`` `F cVYfhK YVghYf`6i]X]b[

D\cbY. f\$&Ł`- ' ,) `(,) *

9a U]: [gUa 4 i bgk "YXi "Ui](#)

K YVg]hY: [\hfdg.#gUa "Ufng"i bgk "YXi "Ui](#)

H\Y`GW\cc``cZħY`5fng`UbX`A YX]U`k ci `X``_Y`hc`F YgdYWwz ``m5W_bck`YX[Y`ħY`HfUX]h]cbU``7 i għcX]Ubgž
ħY`6YXY[U`fP`Ybg]b[ħcb`WUa di gŁž; UX][U`f7]mUbX`5fhi`8Yg][b`7 Ua di gYgŁ`UbX`ħY`B [i bbUk U`
dYcd`Y`f5i ghU]Ub`8YZ`bVW` : cfW`5WUXYa mi]b`7 UbVYffUŁ`cZħY`UbXg`k \YfY`YUW`WUa di g`cZI`BGK`]g
`cWUħYX"

7 ci fgY'8YHJ]`g

7 fYX]hDc]bhr *`

Gi a a UfmicZ`h`Y'7 ci fgY

Gi V`Y`W`i`5`f`Y`U`'5`d`S`f`h`W`I` d`f`f` Y`
H`\\`g`'W`e`i` f`g`Y`'W`b`'U`'g`c`'V`Y`'g`h`'X`]`Y`X`'j`b`'h`Y`'Z`c`'ck`'j`b`[`'g`d`Y`W`U`'g`U`h`c`b`.'7`'Y`'f`e`Z`

H`\\`Y`'U`j`a`'c`Z`h`'g`'W`e`i` f`g`Y`'j`g`'h`c`'Z`J`a`'j`]`U`f`]`g`Y`'m`c`i`'k`'j`h`'U`'k`'j`X`Y`'f`U`b`[`Y`'c`Z`W`e`b`h`Y`a`d`c`f`U`f`m`i`]`h`Y`'f`U`h`'f`Y`'U`b`X`'h`c`
Y`b`W`e`i` f`U`[`Y`'m`c`i`'h`c`'Y`l`d`Y`f`j`a`'Y`b`h`k`'j`h`'U`'j`'U`f`]`Y`h`m`i`c`Z`X`]`Z`Y`f`Y`b`h`g`m`Y`g`'U`b`X`'['Y`b`f`Y`g`']`b`'m`c`i`'f`'c`k`'b`'k`'f`]`h`b`[`'"`'6`m`
i`b`X`Y`f`U`_]`b`[`'h`'g`'W`e`i` f`g`Y`'m`c`i`'k`'j`'U`W`e`i`'j`f`Y`'U`'d`f`U`W`]`W`'i`b`X`Y`f`g`h`U`b`X`]`b`[`'c`Z`\\`c`k`'`]`h`Y`'f`U`h`'f`Y`'k`'c`f`_`g`'V`m`X`Y`j`'Y`'c`d`]`b`[`
m`c`i`'f`'W`]`h`W`'f`Y`U`X`]`b`[`'g`_]`g`z`'U`b`X`'k`'j`'\\`U`j`'Y`'h`Y`'c`d`d`c`f`h`'b`]`m`h`c`'['U`]`b`'Z`Y`X`V`U`W`_`c`b`'m`c`i`'f`'c`k`'b`'k`'f`]`h`b`[`'']`b`'U`
g`i`d`d`c`f`]`Y`'k`'c`f`_`g`\\`c`d`'Y`b`j`]`f`c`b`a`'Y`b`h`'M`c`i`'k`'j`'U`'g`c`'X`Y`j`'Y`'c`d`'h`Y`'W`U`Z`i`g`_]`'g`'b`Y`W`W`g`g`U`f`m`h`c`'['Y`b`Y`f`U`h`z`'f`Y`j`'j`g`Y`
U`b`X`'Y`X`]`h`m`c`i`'f`'c`k`'b`'k`'c`f`_`"

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

%`8`Y`a`c`b`g`h`f`U`h`'_'b`c`k`'Y`X`[`Y`'c`Z`a`c`j`'Y`a`'Y`b`h`g`z`'g`m`i`Y`g`'U`b`X`'['Y`b`f`Y`g`']`b`'W`e`b`h`Y`a`d`c`f`U`f`m`i`]`h`Y`'f`U`h`'f`Y`
&`"`X`Y`b`h`Z`m`i`Z`c`f`a`U`'Y`'Y`a`'Y`b`h`g`'c`Z`]`h`Y`'f`U`h`'f`Y`'U`b`X`'\\`c`k`'h`Y`'m`i`c`d`Y`f`U`h`'j`b`'g`d`Y`W`]`Z`W`[`Y`b`f`Y`g`
'`"``I`'b`X`Y`f`g`h`U`b`X`'h`Y`'d`f`U`W`]`W`'X`Y`W`]`g`]`c`b`g`'k`'f`]`h`f`g`'a`U`_`Y`'j`b`'f`Y`'U`h`c`b`'h`c`'h`Y`'W`U`Z`i`c`Z`k`'f`]`h`b`[`
(`"``5`d`d`f`Y`W`]`U`h`'h`Y`'j`a`d`c`f`U`b`W`'c`Z`h`Y`'W`]`h`W`'Z`J`W`'m`h`c`'h`Y`'W`Y`U`h`j`'Y`'d`f`c`W`g`g`
)`"``7`f`]`h`W`]`m`U`d`d`f`U`]`g`Y`'h`Y`]`f`'c`k`'b`'k`'c`f`_`U`b`X`'h`Y`'k`'c`f`_`c`Z`c`h`Y`f`g`
*`"``8`f`U`Z`z`'f`Y`j`'j`g`Y`'U`b`X`'Y`X`]`h`h`Y`]`f`'c`k`'b`'a`'U`b`i`'g`W`]`d`h`g`

HYUWX]b['GhfUHY[]Yg`

F U]h]c]b]U`Y`Z`c`f`'h`Y`'j`b`W`i`'g`]c`b`'c`Z`W`e`b`h`Y`b`h`U`b`X`'h`Y`U`W`X`]b['U`d`d`f`c`U`W`X`

H`\\`Y`'f`Y`'j`g`'b`c`'W`U`b`c`b`'']`b`'7`f`Y`U`h`j`'Y`'k`'f`]`h`b`[`'d`Y`X`U`[`c`[`m`i`g`c`'h`Y`'a`'U`h`f`]`U`'']`b`'h`Y`'W`e`i` f`g`Y`'f`Y`U`X`Y`f`'j`g`'U`b`'j`b`Y`j`'j`h`U`V`Y`
f`Y`Z`Y`W`]`c`b`'c`Z`h`Y`'j`b`X`j`]`X`i`U`'h`U`g`h`Y`g`'c`Z`h`Y`'W`e`i` f`g`Y`'W`e`b`j`'Y`b`c`f`'U`b`X`'h`Y`'Y`W`h`'f`Y`f`g`"``B`c`b`Y`h`Y`'Y`g`g`z`'h`Y`g`Y`'f`Y`U`X`]`b`[`g`
\\`U`j`'Y`'V`Y`Y`b`'g`Y`'W`W`Y`X`'h`c`'['j`'Y`'m`c`i`'U`'Z`Y`'Z`c`f`'h`Y`'f`U`b`[`Y`'c`Z`W`e`b`h`Y`a`d`c`f`U`f`m`i`]`h`Y`'f`U`h`'f`Y`z`'Z`c`f`'k`'\\`U`h`]`g`'V`Y`]`b`[`'k`'f`]`h`Y`b`
b`c`k`'"`K`'h`c`i`'h`i`'b`X`Y`f`g`h`U`b`X`]`b`[`'h`Y`'W`'f`f`Y`b`h`g`h`U`h`'c`Z`h`Y`'U`f`h`]`h`]`g`'\\`U`f`X`'h`c`'V`Y`'j`b`b`c`j`'U`h`j`'Y`'c`f`Z`Y`g`'\\`k`'j`h`'m`c`i`'f`'c`k`'b`
k`'f`]`h`b`[`'"`'h`Y`'f`Y`U`X`]`b`[`g`'\\`U`j`'Y`'U`'g`c`'V`Y`Y`b`'g`Y`'W`W`Y`X`'U`g`'Y`l`'Y`a`'d`'U`f`g`'c`Z`h`Y`'j`'U`f`]`c`i`'g`'Z`c`f`a`U`'X`Y`j`'j`W`g`'X`]`g`W`'g`g`Y`X`'j`b`
'Y`W`h`'f`Y`g`z`'U`b`X`'U`g`'Y`l`'U`a`'d`'Y`g`'c`Z`[`c`c`X`'k`'f`]`h`b`[`'"`'H`\\`Y`m`i`k`'j`'\\`c`d`Y`Z`'`m`i`d`f`c`j`'X`Y`'m`c`i`'k`'j`h`'a`'c`X`Y`'g`z`'k`'j`h`'g`h`U`b`X`U`f`X`g`'h`c`
U`g`d`]`f`Y`'h`c`z`k`'j`h`'j`b`g`d`]`f`U`h`c`b`'h`c`'k`'f`]`h`"``M`c`i`'U`f`Y`'Y`b`W`e`i` f`U`[`Y`X`'h`c`'V`Y`'f`]`[`c`f`c`i`'g`'k`'j`h`'m`c`i`'f`'f`Y`U`X`]`b`[`z`'h`c`'f`Y`U`'m`Z`c`W`'g`'U`h`
h`Y`'Y`j`'Y`'c`Z`h`Y`'g`Y`b`h`b`W`z`c`f`'h`Y`'d`c`Y`h`W`]`b`Y`z`c`b`'\\`c`k`'`]`h`Y`'f`U`f`m`Y`Z`Y`W`g`'U`f`Y`'U`W`X`]`Y`j`'Y`X`'V`m`i`k`'f`]`h`f`g`"``M`c`i`'U`f`Y`
Y`b`W`e`i` f`U`[`Y`X`'h`c`'Y`l`d`Y`f`j`a`'Y`b`h`k`'j`h`'Z`c`f`a`'g`'U`b`X`'g`h`m`i`Y`g`'m`c`i`'U`f`Y`'b`c`h`Z`J`a`'j`]`U`f`'k`'j`h`z`'U`b`X`z`'U`V`c`j`'Y`'U`z`'h`c`'V`Y`
U`a`'V`]`h`c`i`'g`"

HYUWX]b['ghfUHY[]Yg`

•`Y`W`h`'f`Y`g`'h`c`'j`a`d`U`f`h`_`b`c`k`'Y`X`[`Y`'c`Z`h`Y`'f`U`b`[`Y`'c`Z`[`Y`b`f`Y`g`'U`b`X`'Z`c`f`a`U`'X`Y`j`]`W`g`'Y`j`]`X`Y`b`h`]`b`'W`e`b`h`Y`a`d`c`f`U`f`m`

•`k`'f`]`h`b`[`'Y`l`'Y`f`W`]`g`'

5ggYgga Ybh

%A]bcf'5gg][ba Ybh' F YUX]b['Ug'U'K f]HYf'

- +) \$!%\$\$\$k cfX'dfUW]W]h]W]ga'cZU'gUa d'Y'cZk f]h]b[']b'h'Y'W'ei fgY'fYUXYf
- H\Y'a cXY'Zc'f'h]g'YggUmg\ci 'X'VY'h'Y'W]h]W]d'fUW]W]cZ'fYUX]b['Ug'U'k f]HYf' W'ebXi W'X'']b'Y'W'fYg"K \Yb'UbU'mg]b['mci f'W'cgYb'd]Y'W'h'Y'Zc'ck]b['ei Ygh]cbg'g\ci 'X'[i]XY'mci .
- K \Uh'UfY'h'Y'a cgh]hf_]b['Zcfa U'Y'Ya Ybh]cZ'h]g'd]Y'W'3'7\ccgY'cbY'cf'k c'k \]W'UfY'a cgh]a dcf'Ubh]c'']g'gi W'W'ggž'UbX'UbU'mgY'\ck 'h'Y'mcdY'fU'h]ž'Y". d'ch]gf]i W'f'fYž'bUffU'h]j'Y'j'c]W'ž'dc]bh'cZj]Yk žX]U'c[i Yž'XY'gW]d]h]cbž'Y'h'W'Zc'Z]W]cb/'`]bY'VfYU_gž'gh]bnU]W'gf]i W'f'fYž'a Y'h]d\cfž'U'mci hc'f'ch]gf]i W'f'fY

j]U'hfUW_`VXUb[Yg'cb'gcZnWcd]Yg'fN`Y'h'hc'f'k]''bYYX'hc'gYY'Yj]XYbW'cZh'g'ZYXVUW`L'

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

k YY_mfYUX]b[g`k]`VY`Uj U]UV`Y`cb`A ccX`Y

F YWca a YbXYX`F Ygci fWg

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

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

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

Ẓmci `YbWci bhYf`U`dfcV`Ya `k \Yb`U`H`Ya dh]b[`hc`gi Va]hmc i f`Ugg][ba YbhHfci [\`Hi fb]h]bžd`YUgY
H`Yd\cbY`9I H`fbU`Gi ddcfhcb`-` ,) `` `` ` %cf`Ya U]`H`Ya `cb`YI H`fbU`H`hgi ddcfh4 i bgk "YXi "Ui ``Gi ddcfh
\ci fg`UfY` , .\$\$Ua `--`%\$. \$\$da `cb`k YY_XUmg`UbX`- . \$\$Ua `--`) . \$\$da `cb`k YY_YbXg`fI *) `XUmg`U`mYUfL` Ẓmci
UfY`i bUV`Y`hc`gi Va]hmc i f`Ugg][ba YbhXi Y`hc`U`ZU`ihk]H`Hi fb]h]b`mci `a UmiUdd`miZc`f`Ub`YI H`bg]cbžVi hmc i
a i ghfYH]b`mci f`h]W`Yhbi a VYf`Zca `9I H`fbU`Gi ddcfhfU`cb[`k]H`UbmchYf`fY`Yj UbhXcW a YbHgE`hc
]bWi XY`Ug`Yj]XYbW`hc`gi ddcfhmci f`YI H`bg]cb`Udd`]W]h]cb" Ẓmci `Ya U]`9I H`fbU`Gi ddcfhmci `k]`

5 WUXYa]W<c bYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gZ`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`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`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g`"H\]g`U`gc`Udd`]Yg`hc`]a U[YgZ`UfhUbX`XYg][b`dfc`YWgZ`Ug`k Y`U`g
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`Ub[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`Z`UbX`]bZcfa U]cb`k]h`ci hUW_bck`YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`UbX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`Yz`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`i g]cb.`k cf_]b[`k]h`chYfg`Vi hdUgg]b[`cZ`hY`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`UbchYf`gh`XYbhVYZc`fY`hY`Xi Y`XUHY`Zc`f`Zc`hY`di fdcgY`cZ`hY`a

- i bXYfghUbx'mci f'f][\hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wcdmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5Ww'dhUV'Y'I gY'cZ I BGK '⇒H'F Ygci fW'g'Dc`]Wm
- VY'Uk UfY'cZh'Y'ghUbxUfXg'cZVY\Uj]ci f'YI dYW'X'cZYj Yfmcby`]b'h'Y'I BGK 'Wca a i b]m
- `cWJh'gYfj]W'g'UbX'j]bZcfa Uh]cb'UVci hl BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZh'YgY'UfYUg'k]`VY'ZJa]]Uf'hc'mci ž'ch'Yfg'k]`VY'byk "; U]b]b['U'gc`X'i bXYfghUbx]b['cZU`h'Y fY'UH'X'UgdYW'g'cZ9@G9'k]`Y'd'mci 'a U_Y'h'Y'a cghcZmci f'gh X]Yg'Uhl BGK ""

[\hd. #gj V'YWf i \]XYg" \]VfUfm'i bgk "YXi "Ui #'\]gY#JVci h' \]gY](#)

5 WUXYa]W]bZcfa Uh]cb`

: cf`YggYbh]U`ghi XYbh]bZcfa Uh]cb`fY`Uh]b[`hc.

- fYei Yghg`Zcf`YI h`bg]cb/
- `Uh`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I BGK `<YU`h`UbX`GUZY`midc`]WYg/
- YI Ua]bUh]cb`dfcVWXi fYg/
- gdYW]U`Vc]bg]XYfUh]cb`]b`h`Y`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
- ghi XYbhYei]m]UbX`X]gUV`]m/
- UbX`ch`Yf`YggYbh]U`UWUXYa]W]bZcfa Uh]cb`gYY