IEST7001

9b[U[]b['GW]YbWY'Zcf'9bj]fcbaYbHJ`'@YUXYfg\]d

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

7ci fgY[·]Cj Yfj]Yk

GhJZZ 7 cbhJWh 8 YhJ] `g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`] m	@cWUh]cb	D\cbY
@Ui fU'A W@Ui W\`Ub	`Ui fU"a WUi W\`Ub4 i bgk "YXi "Ui	· /	A cfj Yb 6fck b F cca '&*-	d`YUgY'i gY

7ci fgY 8YHJ] g

7 fYX]h'Dc]bhg'*

Gi a a UfmcZh\Y 7ci fgY

9ZYWNjYYbj]fcbaYbhJ``YUXYfg\]d`UbX`WUfY`]g`XYdYbXYbhicb`UVWifUhY`UbX`fYgdcbg]jY`]bZcfaUhjcb`UVcih cifYbj]fcbaYbhg`—'Vih\ck'Xc'kY`_bck'h\Y`kcfX3`H\]g`WcifgY`]bHfcXiWYgžYIUa]bYgžUbX`XYamgh]ZYg`U X]jYfgY`fMJj\[YfgYZfJWNjYY`cZgW]Ybh]ZJWacXH\g`cZgW]YbWji]fXXbgicXZhHJj`]fb[\Jd['YacYbahYLbhXJ`_b/ckYYaXV[XYX]MXY`WcifgY`U]ag`hc aU_Y`h\Y`ZJa]`]Uf`UgdYWg`cZgW]YbWY`gHUb[Y`UbX`h\Y`ghfUb[Y`UgdYWg`ZJa]`]UfžYbWcifU[]b['YaVcX]YX

fž

5ggYgga Ybh

5ggYgga Ybh'HUg_g

5ggYgga Ybh'tUg_	K Y][\h	8iY'8UHY	Gh XYbh@YUfb]b[Ci hWca Ygʻ5ggYggYX
K YY_`mF YgdcbgYg	' \$1	Bch5dd`]WUV`Y	%ž'&ž'' ž'(
:]bU`F Ydcfh) \$1	&*#\$(#&\$&%`\$*.\$\$`DA	' ž˙) ž˙*
Ei]n	&\$ı	&-#\$'#&\$&%`\$+.\$\$`DA	%ž [.] ' ž [.] (

5ggYgga Ybh8YhJ]`g

5ggYgga Ybh% K YY_`mF YgdcbgYg

GhUfhXUhY. Bch5dd`]WUV`Y

8 YHJ]`g.

 $: YYXVUW\underline{\ }\ 'k\]```VY`[\]j\ Yb'i\ g]b[\ '[\ YbYfU``Wca\ a\ Ybhg``UbX`a\ cXY``Ubgk\ Yfg''$

 $\label{thm:condition} \mbox{Hi fb]h]b"gYh]b" Low Ybh"]g"gi Va]hhYX"h\fci [\h]b" Low X"ghi XYbhg"Xc"bch"gYY" Hi fb]h]b g]a]"Uf]hmfYdcfhg" \mbox{Hi fb]h]b" Low Ybh"]g"gi Va]hhYX"h\fci [\h]b" Low X"ghi XYbhg"Xc"bch"gYY" Hi fb]h]b Low Ybh"]g"gi Va]hhYX"h\fci [\h]b" Low Ybh"]g"g [\h]b" Low Ybh"]g"g [\h]b" Low Ybh"]g"g [\h]b" Low Ybh"]g"g [\h]b" Low$

5 http://bxubwww.Fyei]fyaYbhg

5 hh/bXUbWY`]b``YWn fYg`fk \Yh\Yf`j]U`X]ghUbWY`cf`]b`dYfgcbŁ`]g`fYei]fYX`Zcf`h\]g`Wci fgY"`Gh XYbhg`k \c WUbbchVY`dUfhcZ`]j Y``YWn fYg`a i gha U_Y`ch\Yf`UffUb[Ya Ybhg`k]h\`h\Y`Wci fgY`Wcbj Ybcf`hc`a YYhWci fgY fYei]fYa Ybhg"

7 ci fgY GWX YXi `Y

J]Yk 'WUgg'h]a YHUV'Y

H]a YtUV`Y

	8 UHY	Hmd Y	7cbH/bh
GYa]bUf	K YY_'%'%)': YVfi Ufm'!'%- : YVfi Ufm		Interview Problem and Proble
			%" GW]YbWY`]gʻgcW]U`" &" H\Yʻdck YfʻcZgW]YbWYʻWb``YUXʻhc`V`cW_gʻ]b Vch\`]b`Vch\``YUfb]b[`UbX`Wcaaib]WUh]b[gW]YbWYʻfVi hih\YgY`WUb`VY`cj YfWcaY*Ł ' " Bi UbWYX`i bXYfghUbX]b[`cZgW]YbWY`]g bYWYggUfmZcf`[fYUhYbj]fcbaYbhU``WUfY" . K Y`k]````cc_`Uh—Uacb[`aUbmX]ZYfYbhk UmgʻcZ _bck]b[—k\UhdfYW]gY`mʻgW]YbWY']g"`K Y`k]```U`gc [Yhhc'aYYhYUW\`ch\Yf`UbX`ghUfh`YUfb]b[`k\Uhk

K YY_'% '&*j Yf'h\fYY'a U]b

K YY_', .') '5df]`'!'- '5df]`	GYa]bUf	9b[U[]b['GW]YbWY
		Dcgg]VYZ]YXHf]dfXYdYbX]b[fcb7CJ=8fgUZYmEH65]
K_YY_'''&\'5df]`'!'%* 5df]`	GYa]bUf	7caaib]WUh]b['GW]YbWY
		: fca 'ci f'ci fbYmh\fci [\'h\Y'Wci fgY'gc'ZJfzkY _bck 'h\UngWjYbhjZjWkcf_'WUb'VY'Vch\']bHY``YWi U``m UbX'W\'hi fU``mW\U``Yb[]b["'K\Yb'kY'kUbhhc Wca a i b]WUhY'gWjYbWYz\ck' WUb'kY'Ujc]X'Y]h\Yf dUhfcb]g]b['ci f'Ui X]YbWYg'cf'cj Yf!Wca d`]WUhjb['h\Y gWjYbWY3'=b'h\]g'gYa]bUfzkY'k]```g\UfY'UbX'X]gW gg ci f'ZJj ci f]hY'YI Ua d'Yg'cZdi V']WYb[U[YaYbhcZ UbX'k]h\'gWjYbWY'Zcf'h\Y'Ybj]fcbaYbh''KY'k]``h\]b_ UVci hci f'Ui X]YbWYg'fWcfdcfUhY3'; YbYfU``di V']W8 @cVVmjb[3Ł'UbX'fYZYWhcb'ci f'Z]bU``dfc'YWyg"
K YY_'%\$.'% '5df]`'!'&' 5df]`	GYa]bUf	@cj Y`UbX`gW]YbWY.`gi gHJ]b]b[k cf`Xg
		#b 'fh]g 'Z]bU` 'gYa]bUfžk Y 'k]` 'fYh fb 'hc 'W 'h fU` UgdYWg 'c ZgW]YbWYžVi h]b 'U 'X]ZZYfYbhk Um '\ck 'WUb gW]Ybh]Z]WdfUW]WY '\Y`d 'dYcd Y 'hc 'ZJ` ']b '`cj Y 'k]h\ 'h\Y k cf X 'Ufci bX 'h\Ya 3' < ck 'k Y 'gi ghU]b 'ci fgY'j Yg 'Ug dYcd Y 'Xc]b['fh\Y 'X]Z]W 'hk cf_ 'c Zdfc W gg]b['c ZhYb W\U` Yb[]b['XUhU 'UVci hh\Y 'ghUhY 'c Zci f'd 'UbYh3 K \Uh]g 'h\Y 'k cf_ 'k Y 'WUfY 'UVci ha cgh[c]b[Zcfk UfXž'UbX'k \Uhgcfhg 'c ZWc` 'UVcfUh]cbg 'Xc 'k Y bYYX'hc 'VY 'U'dUfh'c Zhc 'gi ddcfh'h\Uh3

Fygci fWyg

DfYgWf]VYX F Ygci fWYg

 $\\ \text{H} $$ YfY^{-}]g^{-}bc^{-}fYei \] fYX^{-}hYI \ h^{-}Z^{-}f^{-}h^{-}]g^{-}Wci \ fgY''^{-}5^{-}^{-}fYUX]b[\ g^{-}k\]^{-}^{-}VY^{-}Uj \ U]^{-}UV^{-}Y^{-}j \] U^{-}@Y[\ Ubhc'']$

FYWca a YbXYX FYgci fWyg

5```fYUX]b[g'k]```VY'UjU]`UV`Y'j]U'@Y[Ubhc"

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

Gh XYbhZYXVUW_[Uh\YfYX]]UA m9l dYf]YbWYžA 9A 'dfc[fUa!fYj]g]cb']bhYfj]Yk g'UbX']bZcfa U``Xi f]b[!

Gi Va]gg]cb cZ5ggYgga YbhHUg_g Hi fb]h]b Gi Va]gg]cb

-Zmci 'YbWci bhYf'U'dfcV`Ya 'k \Yb'UhhYa dh]b['hc'gi Va]hmci f'Ugg][ba Ybhh\fci [\'Hi fb]h]bž'd`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

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

D`U[]Uf]ga i]gii g]b[ih\Yik cfXgicfi]XYUgicZch\YfgiUbXidfYgYbh]b[ih\Ya iUgimci fick b"i=iWUbihU_Yia Ubm Zcfa gžZfca iXYi]VYfUhYiWXYUh]b[ihciUWW]XYbhU`mWcdm]b[iZfca iUigci fWYik]h\ci hiUW_bck iYX[Ya Ybh'i

- i bXYfgfUbX mci f'f][\hg'UbX'fYgdcbg]V]`]hJYg'Ug'U'gh XYbhUhl BGK
- VY`Uk UfY`cZd`U[]Uf]ga ž`Wcdmf][\hz'l BGK `Gh XYbh7cXY`cZ7cbXi WhUbX`5VWWdhUV`Y`l gY`cZ I BGK `=\forall H`F Ygci f\W\g`Dc`]\m\m
- VY 'Uk UfY 'cZh\Y 'ghUbXUfXg 'cZVY\Uj]ci f'Yl dYWYX 'cZYj YfmcbY ']b 'h\Y 'l BGK 'Wca a i b]hm
- `cWUHY 'gYfj]WYg'UbX ']bZcfa UH]cb'UVci hI 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 bXYfgHJbX]b['cZU``h\YfY`UhYX'UgdYWng'cZ9@+69'k]``\Y`d'mci 'a U_Y'h\Y'a cghicZmci f'ghi X]Yg'UhI BGK "'\\hd.##qi V'YWfi |XYg"`]VfUfm'i bqk "YXi "Ui #\`]qY#JVci hY`]qY

5 WUXYa]W + DZcfa Uh]cb

: cf'YggYbhJU`ghi 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'GUZYhmdc']W]Yg/