1.

$Cu = 450 - 300 = 150 \quad Co = 150$

$\frac{Cu}{Cu + Co} = \frac{150}{150+150} = 0.5$

As it shows on the probtable, should order 200

2.

DEM	Prob	VAC. Prof(	supply. prof($)	total($
100	0.05	$100\times150-100\times150=0$	$(150-50)\times200=20000$	
150	0.25	15000	20000	
200	0.3	$200\times150=30000$	20000	
250	0.24	$200\times150=30000$	20000	
300	0.16	$200\times150=30000$	20000	

expect prof: VAC $= 0 + 0.25\times15000 + 0.7\times30000 = 24750$

Supply $= 20000$

all $= 24750 + 20000 = 44750$

3. $Cu' = Cu = 150 \quad Co' = 150 - 25 = 75$

$\frac{Cu'}{Cu'+Co'} = \frac{150}{150+75} = 0.67$ due to the table, they should order 250

4.

DEM	Prob	VAC. Prof($)	supply. Prof($)	total($)
100	0.05	3750	13750	17500
150	0.25	15000	17500	32500
200	0.3	26250	21250	47500
250	0.24	37500	25000	62500
300	0.16	37500	25000	62500

Expect: VAC = $0.05 \times 3750 + 0.25 \times 15000 + 0.3 \times 26250 + 0.4 \times 37500 = 268125$.

Supply $= 0.05 \times 13750 + 0.25 \times 17500 + 0.3 \times 21250 + 0.4 \times 25000 = 214375$

all $= 48250$

5. Yes.

I would recommend such a buyback contract, as the profits of VAC and the entire supply chain improve without hurting the profits of supplier.