2) $G(p) = 1 - p^2 - (1-p)^2$

$= 1 - p^2 - 1 - p^2 + 2p$

$= 2p - 2p^2$

$\Rightarrow 2 - 4p = 0$

$-2 \qquad -2$

$\frac{-4p}{-4} = \frac{-2}{-4}$

$p = \frac{1}{2} \Rightarrow 0.5$

Maximized $G(p) = (2 \cdot 0.5) - (2 \cdot 0.5^2)$

$= \boxed{1 - 0.5}$ Min values

$= 0.5$

$p = 0.5$

$p = 1$

$G(p) = 0$