2.

$$R(p,q) = \frac{1 + pp_s + qq_s}{\sqrt{1+p_s^2+q_s^2}\ \sqrt{1+p^2+q^2}}$$

Surface normal $= (-p, -q, +1)$

Light source direction $= (-p_s, -q_s, 1)$

$R(p,q)$ will be maximum when light source direction is parallel to surface normal.

i.e. $(-p, -q, 1)$ is parallel to $(-p_s, -q_s, 1)$

$\Rightarrow p = p_s$ & $q = q_s$

$R(p,q)$ will be 0, when light source direction is perpendicular to surface normal

ie $(-p, -q, 1) \perp (-p_s, -q, 1)$

$\Rightarrow pp_s + qq_s + 1 = 0$ (Take dot product)

Here, the locus of (p,q) will form a straight line.