5a) If $k = 0$, s will be undefined.

5b) To verify the signature as valid for DSA signing, we check for $0 < r < q,\ and\ 0 < s < q,\ and\ \left(g^{\frac{H(m)}{s}} g^{\frac{\propto r}{s}}\ mod\ p\right)\ mod\ q = r$. For $r = 0$, we check for $\left(g^{\frac{H(m)}{s}}\ mod\ p\right)\ mod\ q = 0$. $s = \frac{H(m)}{k}\ mod\ q$, thus, we have $\left(g^{\frac{H(m)}{\frac{H(m)}{k}}}\ mod\ p\right)\ mod\ q = (g^k\ mod\ p)\ mod\ q = 0$. Since $r = (g^k\ mod\ p) = 0$, we have $0\ mod\ q = 0$, and this statement will always hold for any value of s and thus the attacker can forge a signature on any message

5c) For $s = 0$, we check for $(\infty\ mod\ p)\ mod\ q = r$. Since ∞ is unable to be calculated, it is no longer required to verify as valid, and any value of r will be valid allowing the attacker to forge a signature.