Since $\alpha, \beta > 0$: two cases.

Case 1. $\alpha \leq \frac{\beta^2}{4} \Rightarrow$ two real negative eigenvalues

STABLE

Case 2. $\alpha > \frac{\beta^2}{4} \Rightarrow$ complex eigenvalues, negative real part

STABLE.

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10. a) $u' = h + u - \ln(1+u)$.