1.41. $y[n] = x[n]\{g[n] + g[n-1]\}$.

(a). $\because g[n] = 1, \quad \forall n$

$\therefore g[n] + g[n-1] = 2$.

$\therefore y[n] = 2x[n]$.

~~$2x[n+n_0]$~~ $\longrightarrow y(n+n_0) = 2x[n+n_0]$

So the system is time invariant

(b) $\because g[n] = n$.

$\therefore g[n] + g[n-1] = 2n-1$.

$\therefore y[n] = (2n-1)x[n]$

$y[n+n_0] = (2n_0+2n_0-1)x[n+n_0]$

$= (2n-1)x(n_0+n) + 2n_0x[n+n_0]$

So the system is not time invariant.

(c) $\because g[n] = 1+(-1)^n$.

$g[n] + g[n-1] = 1+(-1)^n + 1+(-1)^{n-1} = 2$

$\therefore g[n] = 2[n]$

$y(n+n_0] = 2x(n+n_0)$

So the system is time invariant.