UIN: _____

Name: _____

1. (6 pts) Consider the system specified by the following input-output relation:

$$y[n] = \cos\left(x[n]\right)$$

Determine if it is: (i) linear or non-linear, (ii) time-invariant or time-varying. **Justify your answers with proofs or counter-examples**.

2. (4 pts) Compute the convolution $x[n] * h[n]$ for $x[n] = (-2)^n u[n-1]$ and $h[n] = (n-1)\left(u[n] - u[n-3]\right)$.