1. If the -3dB cut-off point for the filter shown occurs for a real frequency of 200Hz then what should be the **sampling rate** (samples per sec)?



2. The difference equation for a digital filter is given by: . Compute the systems function .

3. Why must the Region of Convergence (ROC) be included with an analytic expression of the z-transform?

4. True or False and Why: The FIR filter realization has fewer coefficients than an IIR filter but the FIR filter has stability problems that the IIR filter does not.

5. For a causal LTI system what can you say about the poles of the z transform and the boundary of the region of convergence.