**Note: For this assignment, your Handwritten, hard-copy solution is**

**due on or before November 21st, 2012.**

**Question No. 1**

Find the z-transform for each of the following sequences (from the definition of the z-transform),

**Question No. 2**

Using the properties of the z-transform, find the z-transform for each of the following sequences

1. ,

where for and for.

**Question No. 3**

Given two sequences

1. determine the z-transform of convolution of the two sequences using the convolution property of the z-transform,
2. determine convolution by the inverse z-transform from the result in part (a),

**Question No. 4**

Using the Table 5.1 and z-transform properties, find the inverse z-transform for each of the following functions,

**Question No. 5**

Using the partial fraction expansion method and Table 5.1, find the inverse z-transform for each of the following functions,

**Question No. 6**

A system is described by the difference equation

determine the solution when the initial condition is.

**Question No. 7**

A system is described by the difference equation

determine the solution when the initial condition are and.

**Question No. 8**

Given the following difference equation with the input-output relationship of a certain initially relaxed system (all initial conditions are zero),

1. find the impulse response sequence due to the impulse sequence.
2. find the output response of the system when the unit step function is applied.

**Question No. 9**

Given the following difference equation with the input-output relationship of a certain initially relaxed DSP system (all initial conditions are zero),

1. find the impulse response sequence due to the impulse sequence.
2. find the output response of the system when the unit step function is applied.