



## [Frequently Asked Questions]

### [Elementary Difference Equations & Their Applications to Economics ]

<b>Subject:</b>	Business Economics
<b>Course:</b>	B.A., 6 <sup>th</sup> Semester, Undergraduate
<b>Paper No. &amp; Title:</b>	Paper – 631 Advanced Mathematical Techniques
<b>Unit No. &amp; Title:</b>	Unit - 4 Difference Equations
<b>Lecture No. &amp; Title:</b>	1: Elementary Difference Equations & Their Applications to Economics

## **Frequently Asked Questions**

### **1. Define difference equation?**

Ans. A *difference equation* is an equation that contains a dependent variable, independent variable and its finite difference.

### **2. What is order of difference equation?**

Ans. The maximum difference of the difference intervals of the equation is the *order* of a difference equation.

### **3. What is the solution of difference equation?**

Ans. A function  $y$  of  $x$  is called a *solution* of a difference equation if every value of  $y$  satisfies the difference equation for all values of the independent variable  $x$ .

### **4. What is the step to calculate homogeneous solution of the difference equation?**

Ans. Make the highest difference coefficient 1 and set RHS to be zero.

### **5. Give general form of linear difference equation.**

Ans. The general form of a homogenous linear difference equation with constant coefficients of order  $n$  is

$$y_{x+n} + A_1 y_{x+n-1} + \dots + A_{n-1} y_{x+1} + A_n y_x = 0$$

### **6. Discuss method to obtain particular solution of second order linear difference equation.**

Ans. It depends upon the functional form of RHS of the difference equation.