

**C O N T E N T S**

<b>Preface</b>	X
<b>0.0 Notations</b>	<b>1 - 3</b>
0.1) Notations	
<b>1 Approximation and Interpolation</b>	<b>4 - 30</b>
1.1) Introduction	
1.2) Approximation in a metric space	
1.3) Approximation in a Normal Linear Space	
1.4) The L <sub>p</sub> -Spaces	
1.5) Uniqueness of best Approximation	
1.6) Interpolation	
1.7) Lagrange Form, Formula	
1.8) Algorithm	
1.9) Newton's Divided Differences	
1.10) Newton's Divided Differences Table	
1.11) Properties of Divided Difference	
<b>2 Piecewise Approximation</b>	<b>31 - 42</b>
2.1) Limitations of polynomial Approximation	

2.2) Piecewise Linear Approximation or Broken Line

Interpolation

2.3) Broken line Interpolation is nearly optimal

2.4) Least Squares approximation by broken Lines

### **3 Spline Interpolation**

**43 - 54**

3.1) Introduction

3.2) Linear Spline Interpolation

3.3) Quadratic Spline Interpolation

3.4) Cubic Spline Interpolation

3.5) Example.

### **4 B – Splines**

**55 - 7**

4.1) Definition of B- Spline

4.2) Derivation for B-Splines

4.3) Cardinal Spline Analysis

4.4) Properties of Cardinal B-Spline