	List of Figures	Page No.
Fig. 2.1	Sawtooth profile	38
Fig. 2.2	Length of sawtooth profile with time in non-magnetic	40
	case	
Fig. 2.3	Length of sawtooth profile with time in magnetic case	41
Fig. 2.4	Velocity of sawtooth profile in non-magnetic case	41
Fig. 2.5	Velocity of sawtooth profile in magnetic case	42
Fig. 3.1	Structure of the solution of the Riemann problem for	49
	Euler equations	
Fig. 3.2	Density profile	66
Fig. 3.3	Pressure profile	66
Fig. 3.4	Velocity profile	66
Fig. 3.5	Internal Energy profile	67
Fig. 3.6	Density profile	67
Fig. 3.7	Pressure profile	67
Fig. 3.8	Velocity profile	68
Fig. 3.9	Internal Energy Profile	68
Fig. 3.10	Density profile	68
Fig. 3.11	Pressure profile	69
Fig. 3.12	Veolcity profile	69
Fig. 3.13	Internal Energy profile	70
Fig. 3.14 (a)-(d)	Solution profiles for Test 2; $k_p = 0.1$ , $\lambda = 0.1111$ ,	70
	$\beta = 0.8, \ \theta = 0.01.$ at $t = 0.15s$	

Fig. 3.15 (a)-(d)	Solution profiles for Test 3; $k_p = 0.1$ , $\lambda = 0.1111$ ,	71
	$\beta = 0.8, \ \theta = 0.01$ at time $t = 0.012s$	
Fig. 3.16 (a) – (d)	Solution profiles for Test 4; $k_p = 0.1$ , $\lambda = 0.1111$ ,	71
	$\beta = 0.8, \ \theta = 0.01$ at time $t = 0.035s$ .	
Fig. 3.17 (a) – (d)	Solution profiles for Test 5; $k_p = 0.1$ , $\lambda = 0.1111$ ,	72
	$\beta = 0.8 \ \theta = 0.001667$ at time $t = 0.035s$ .	
Fig. 5.1	Wave pattern for the solution of the Riemann problem for	88
	one dimensional shallow water equations.	
Fig. 5.2	The grid discretization in the $x$ -direction.	89
Fig. 5.3	Solution profile for test 1	97
Fig. 5.4	Solution profile for test 2	97
Fig. 5.5	Solution profile for test 3	98
Fig. 5.6	Solution profile for test 4	98
Fig. 5.7	Height profile for test 5	98
Fig. 5.8	Height profile for test 6	99
Fig. 5.9 (a)	Circular dam break at time $t = 0.6s$	101
Fig. 5.9 (b)	Circular dam break at time $t = 0.6s$	101
Fig. 5.10 (a)	Open Channel dam break flow at time $t = 1.1s$	102
Fig. 5.10 (b)	Open Channel dam break flow at time $t = 1.1s$	103
Fig. 5.11 (a)	Circular dam break at $t = 0.6s$	104
Fig. 5.11 (b)	Circular dam break at $t = 0.6s$	104
Fig. 5.12 (a)	Open channel dam break flow at $t = 1.1s$	105
Fig. 5.12 (b)	Open channel dam break flow at $t = 1.1s$	106
Fig. 5.13	Initial State, at time $t = 0s$	108

Fig 5.14 (a)	Profile at time $t = 2s$	108
Fig 5.14 (b)	Plane view of profile at time $t = 2s$	109
Fig. 5.15 (a)	Profile at time $t = 6s$	109
Fig. 5.15 (b)	Plane view of profile at time $t = 6s$	109
Fig. 5.16 (a)	Profile at time $t = 12s$	110
Fig. 5.16 (b)	Plane view of profile at time $t = 12s$	110
Fig. 5.17 (a)	Profile at time $t = 30s$	110
Fig. 5.17 (b)	Plane view of profile at time $t = 30s$	111
Fig. 5.18 (a)	Profile at time $t = 300s$	111
Fig. 5.18 (b)	Plane view of profile at time $t = 300s$	111
Fig. 6.1	The grid discretization in the $x$ -direction.	118
Fig. 6.2	Wave structure in the solution of Riemann problem	119
Fig. 6.3	Density, velocity, pressure and internal energy profiles	126
	for test 1 with 100 and 2000 grid points.	
Fig. 6.4	Solution profile for test 2 with 200 cells	127
Fig. 6.5	Solution profile for test 2 with 2000 cells	128