Fig. 7 Variation of the dimensionless velocity distribution along the x-axis with t for different values of Reynolds number R (U0=V0=2; y=0; m=0.5; m0=m1=m2=2; k=0.05; M=0.5; λ=50)

Fig. 8 Variation of the dimensionless velocity distribution along the y-axis with t for different values of Reynolds number R (U0=V0=2; y=0; m=0.5; m0=m1=m2=2; k=0.05; M=0.5; λ=50)

Fig. 9 Variation of the dimensionless velocity distribution along the x-axis with t for different values of Hartmann number M (U0=V0=2; m0=m1=m2=2; y=0; k=0.05; R=0.5; λ=50; m=0.5)

Fig. 10 Variation of the dimensionless velocity distribution along the y-axis with t for different values of Hartmann number M (U0=V0=2; m0=m1=m2=2; y=0; k=0.05; R=0.5; λ=50; m=0.5)

Fig. 11 Variation of the dimensionless velocity distribution along the x-axis with t for different values y (U0=V0=2; m0=m1=m2=2; M=0.5; k=0.05; R=0.5; λ=50; m=0.5)

Fig. 12 Variation of the dimensionless velocity distribution along the y-axis with t for different values y (U0=V0=2; m0=m1=m2=2; M=0.5; k=0.05; R=0.5; λ=50; m=0.5)

Fig. 13 Variation of the dimensionless velocity distribution along the x-axis with t for different values of the velocity U0(V0=2; y=0; m0=m1=m2=2; k=0.05; R=0.5; λ=50; m=0.5; M=0.5)

Fig. 14 Variation of the dimensionless velocity distribution along the y-axis with t for different values of magmatic velocity V0 (U0=2; y=0; m0=m1=m2=2; k=0.05; R=0.5; λ=50; m=0.5; M=0.5)