Fig. 1 Variation of the dimensionless velocity distribution along the x-axis with t for different values of permeability parameter $k$ ($U_0=V_0=2$; $m_0=m_1=m_2=2; y=0; m=0.5; M=0.5; R=0.5; \lambda=50$)

Fig. 2 Variation of the dimensionless velocity distribution along the y-axis with t for different values of permeability parameter $k$ ($U_0=V_0=2$; $m_0=m_1=m_2=2; y=0; m=0.5; M=0.5; R=0.5; \lambda=50$)

Fig. 3 Variation of the dimensionless velocity distribution along the x-axis with t for different values of Hall parameter $m$ ($U_0=V_0=2; y=0; m_0=m_1=m_2=2; k=0.05; M=0.5; R=0.5; \lambda=50$)

Fig. 4 Variation of the dimensionless velocity distribution along the y-axis with t for different values of Hall parameter $m$ ($U_0=V_0=2; y=0; m_0=m_1=m_2=2; k=0.05; M=0.5; R=0.5; \lambda=50$)

Fig. 5 Variation of the dimensionless velocity distribution along the x-axis with t for different values of relaxation time $\lambda$ ($U_0=V_0=2; y=0; m_0=m_1=m_2=2; k=0.05; M=0.5; R=0.5; m=0.5$)

Fig. 6 Variation of the dimensionless velocity distribution along the y-axis with t for different values of relaxation time $\lambda$ ($U_0=V_0=2; y=0; m_0=m_1=m_2=2; k=0.05; M=0.5; R=0.5; m=0.5$)