

ABSTRACT

This paper presents a finite difference analysis of Magnetohydrodynamics (MHD) effects on convective flow of dusty viscous fluid incorporating viscous dissipation with respect to fluid and dusty particle. The criterion for the existence and unique solution is established and the properties of solution examined. The dimensionless governing coupled non-linear partial differential equations governing the phenomenon were solved numerically using finite difference scheme. The effects of various parameters on velocities are shown graphically and discussed. It is observed that both the velocity of the fluid and dust particles increases with increase in Grashof number. Velocity of the fluid decreases with an increase in Magnetic parameter. Increase in Mass concentration of dust particles decreases the velocity of both the fluid and particles. Also considerable effects was noticed on the temperature by increasing Eckert number, temperature also increased. Increase in the Prantl number decreases the temperature of the fluid.