**ABSTRACT**

A linear stability of a viscous incompressible fluid bounded by a saturated porous layer underlying a fluid layer in the presence of vertical magnetic field along the z direction has been investigated. The governing equations are solved by applying normal mode analysis. Eigen values and eigen functions corresponding to small oscillations with wave number as the perturbation pasrameter were determined in closed form. The effects of various non-dimensional parameters such as Chandrasekhar number, Magnetic Prandtl number, Grashof number, Darcy number, Prandtl number, porosity, wave number and depth ratio on the flow characteristics has been discussed numerically.