CONCLUSIONS

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The main aim in the present analysis is to study the radiation and chemical reaction effects on MHD flow over an infinite vertical porous plate. The Velocity, Temperature and Concentration distributions are obtained analytically. It is observed that the Velocity profiles for an increase in the Grashof number, Modified Grashof and Permeability of the porous medium whereas decreases for an increasing in Magnetic field, Radiation parameter, Schmidt number and Chemical reaction parameter. It is found that the temperature profiles enhance with an increase in time. Also Prandtl number and radiation parameter increase, the temperature profiles decreases. Further it is noticed that an increase in chemical reaction parameter decreases the fluid concentration whereas the Schmidt number and the concentration variation parameter reverses the effect. It is observed that the agreement of all profiles with the theoretical solution is excellent.

The case of thermal diffusion and radiation effects on unsteady MHD flow past a linearly accelerated vertical porous plate with variable temperature and also with variable mass diffusion in presence of heat source or sink under the influence of applied transverse magnetic field has been analyzed and discussed. The dimensionless governing equations are solved by a closed analytical method. The effects of velocity, temperature and concentration for different parameters are studied. It is observed that the velocity profiles increase with an increase of Radiation parameter, Heat source parameter, Soret number, Permeability parameter, Grashof number and Modified Grashof number but Magnetic parameter gets reverse trend. It is noticed that the temperature profiles decrease with an increase of Radiation parameter, Heat source parameter and Prandtl number. Also it is observed that the

concentration profiles increase with an increase of Schmidt number and Soret number. It is observed that the agreement of all profiles with the theoretical solution is excellent.

A mathematical model has been presented for analytically studied the effect of flow parameters on the free convection and mass transfer of an unsteady magneto-hydrodynamic flow of an electrically conducting, viscous and incompressible fluid past an infinite vertical porous plate under oscillatory suction velocity and thermal radiation. The problem is solved numerically using the perturbation technique for the velocity, the temperature and the concentration field. The expression for the skin friction, Nusselt number and Sherwood number are obtained. It has been seen that the velocity profiles decrease with an increase in magnetic field, Schmidt number and chemical reaction parameter. It is observed that the velocity profiles increase with an increase of radiation parameter, Dufour number, Permeability parameter, Prandtl number, Grashof number and modified Grashof number. The local as well as average skin-friction, Nusselt number and Sherwood number are shown graphically. It is observed that the agreement of all profiles with the theoretical solution is excellent.

In the case of unsteady MHD flow of an incompressible, electrically conducting, viscous fluid past an infinite vertical porous plate along with porous medium of time dependent permeability under oscillatory suction velocity normal to the plate has been made. It is considered that the influence of the uniform magnetic field acts normal to the flow and the permeability of the porous medium fluctuate with the time. The problem is solved, numerically by Galerkin finite element method for velocity, temperature, concentration; skin-friction, Nusselt number and Sherwood number are also obtained. It has been seen that the velocity profiles decrease with an increase in magnetic field, Schmidt number and Prandtl

number. It is observed that the velocity profiles increase with an increase of Permeability parameter, Grashof number and modified Grashof number also observed that the negative values of Grashof number, Modified Grashof number, Magnetic parameter and Schmidt number are gets reverse trend. The local as well as average skin-friction, Nusselt number and Sherwood number are tabulated. It is observed that the agreement of all profiles with the theoretical solution is excellent.

The steady two dimensional radiative MHD boundary layer flow of an incompressible, viscous, electrically conducting fluid caused by a non-isothermal linearly stretching sheet placed at the bottom of fluid saturated porous medium in the presence of heat generation, viscous dissipation and chemical reaction is studied. The governing system of partial differential equations is converted to ordinary differential equations by using the similarity transformations, which are then solved by Runge- Kutta method along with shooting technique for velocity profiles, temperature and concentration are computed for different thermo physical parameters *viz* the Magnetic parameter, Permeability parameter, Radiation parameter, Wall temperature parameter, Prandtl number, Heat generation parameter, Eckert number, Schmidt number and Chemical reaction. It has been seen that the velocity profiles decrease with an increase in Magnetic field, Permeability parameter, Radiation parameter, Schmidt number, Chemical reaction parameter and Prandtl number. It is observed that the velocity profiles increase with an increase of Grashof number, Modified Grashof number, Heat generation parameter and Eckert number. It observed that the temperature profiles decreases with increases of Magnetic parameter, Radiation parameter and Prandtl number. The local as well as average Skin-friction, Nusselt number and Sherwood number are tabulated. It is observed that the agreement of all profiles with the theoretical solution is excellent.

A steady two-dimensional magnetohydrodynamic flow and heat transfer over a stretching vertical sheet influenced by radiation, heat generation and porosity is studied. The resultant governing boundary layer equations are non-linear and coupled form of partial differential equations, and they have been solved by using fourth order Runge-Kutta method along with shooting technique. It is observed that the velocity profiles increase with an increases of Grashof number, Modified Grashof number, Radiation parameter and Heat generation parameter. It is observed that the velocity profiles decrease with an increases of Magnetic parameter, Prandtl number, Schmidt number and Chemical reaction parameter. It observed that the temperature profiles decreases with increases of Prandtl number. It is observed that the temperature profiles increase with increases of Magnetic parameter, Permeability parameter, Radiation parameter and Heat generation parameter. Also it is observed that the concentration profiles decrease with an increases of Chemical reaction parameter and Schmidt number but the concentration profile increases with an increases of Magnetic parameter and permeability parameter. The local as well as average skin-friction, Nusselt number and Sherwood number are tabulated. It is observed that the agreement of all profiles with the theoretical solution is excellent.