for cooled plate gradually decreases on velocity components. It may be concluded that the energy due elastic property of the fluid increases the velocity and then gets dissipated. Grashof number studies the behavior of free convection and it is defined as the ratio of buoyancy force to viscous force. It plays an important role in heat and mass transfer technology. In this study, the results are discussed for the flow past an externally cooled plate (Gr > 0) and flow past an externally heated plate (Gr < 0). Fig.7 is depicted for positive values of the buoyancy parameter Gr which corresponds to the cooling problem. The cooling problem is often encountered in the cooling of nuclear reactors. It is experienced from Fig. 7 that the velocity rises as increasing values of Grashof number (Gr). Fig.8 presents the variation of the temperature distribution across the boundary layer for different values of the plate temperature ε in the direction of the fluid flow. The temperature increases as ε is increasing. Effect of heat absorption parameter on temperature is shown in fig. 9, from which it is concluded that the temperature decreases as heat absorption parameter increases. The effects of A on the temperature of the fluid are depicted through graph 11. The temperature decreases for increase in A. The effects of n on the temperature of the fluid are depicted through graph 12. The temperature increases for increase in n. Fig. 13 shows the effect of Prandtl number (Pr) on the temperature profiles. It is observe that the temperature decreases with increasing values of Prandtl number (Pr).

Effects of various parameters on skin friction and rate of heat transfer are presented in tables I-II. After knowing the velocity field, it is very important from a physical point of view to know the effect of viscoelastic parameter on resistive force or viscous drag. The resistive force or viscous drag on the surface of the body due to the motion of the fluid is known as the shearing stress or skin-friction coefficient. Table I depicts that on increasing thermal Grashof number Gr, visco-elasticity parameter Rm, Radiation absorption parameter Q, time t, Prandtl number Pr, suction velocity parameter A and Scalar constant ε, skin friction coefficient τ increases. From table II, it is observed that Nusselt number increases for increasing values of radiation absorption parameter Q, time t, Prandtl number Pr and suction velocity parameter A.

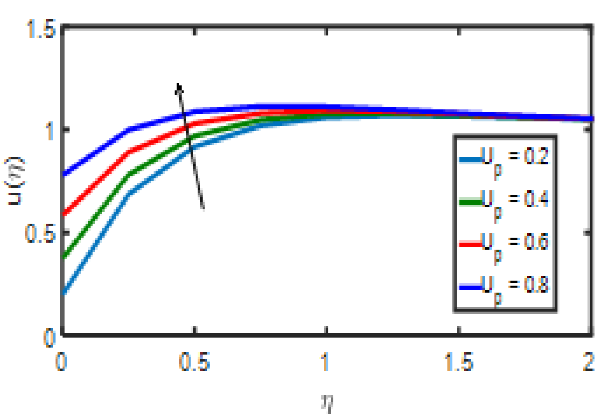

Fig.1 Variation of u with η on for different values of Up

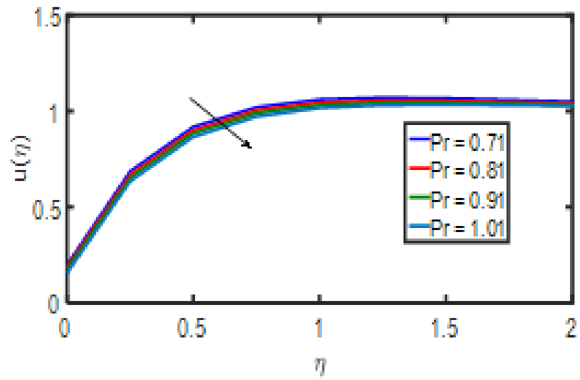

Fig.2 Variation of u with η on for different values of Pr

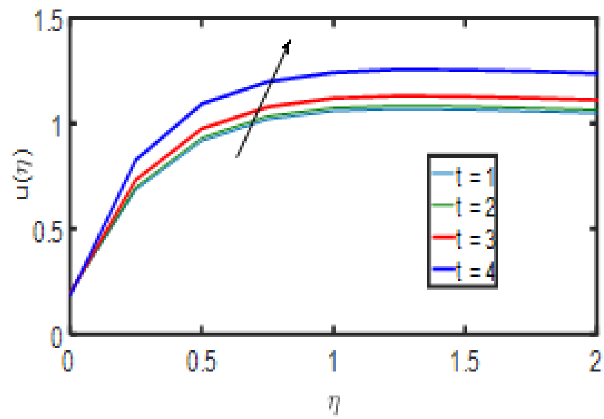

Fig.3 Variation of u with η on for different values of t

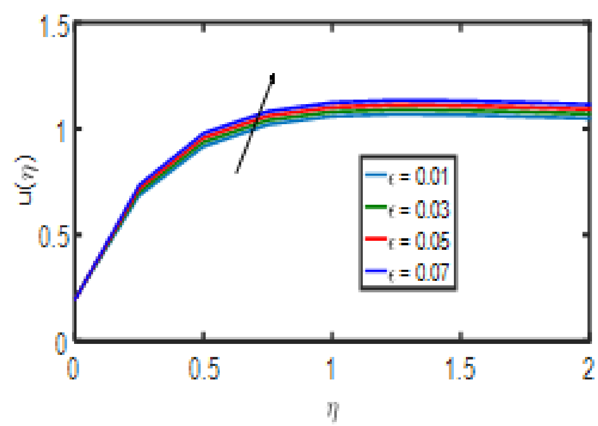

Fig. 4 Variation of u with η on for different values of ε

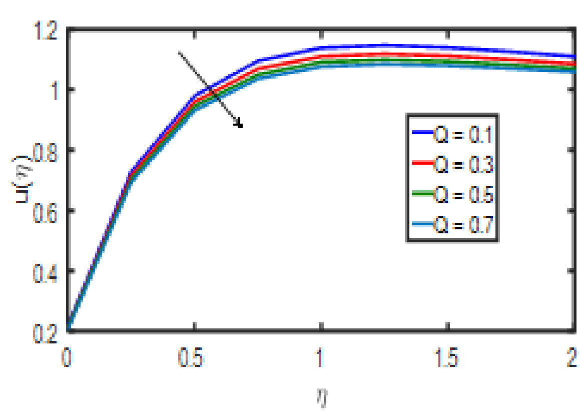

Fig. 5 Variation of u with η on for different values of Q

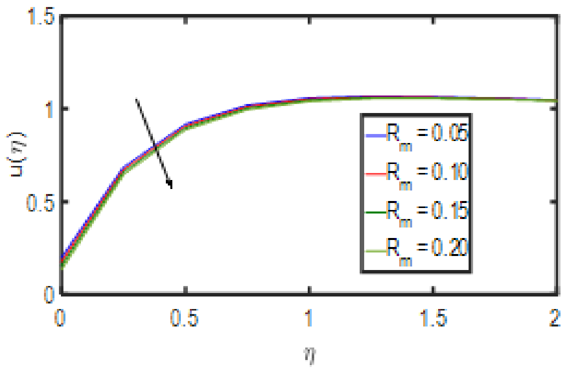

Fig. 6 Variation of u with η on for different values of Rm

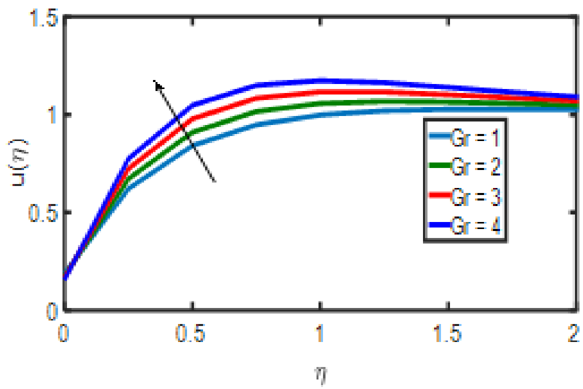

Fig. 7 Variation of u with η on for different values of Gr

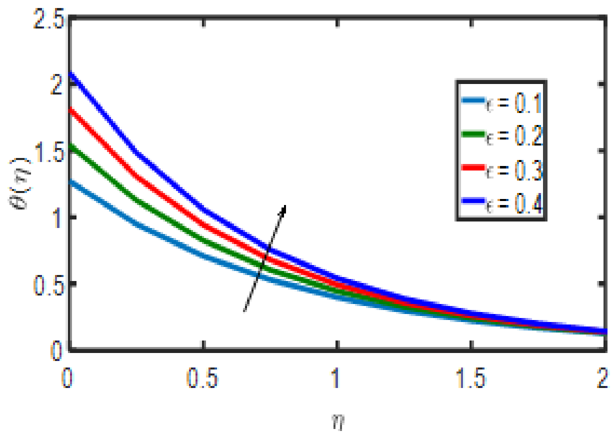

Fig. 8 Variation of θ with η on for different values of ε

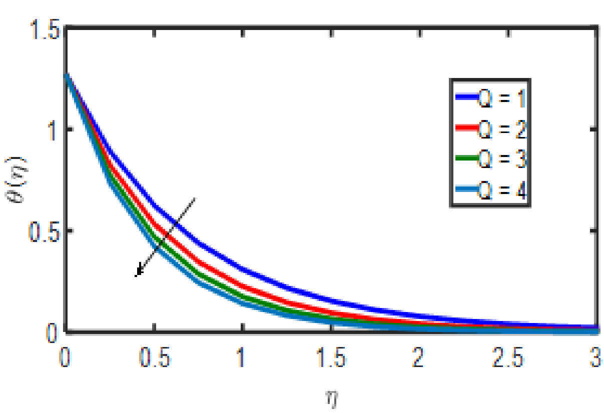

Fig. 9 Variation of θ with η on for different values of Q

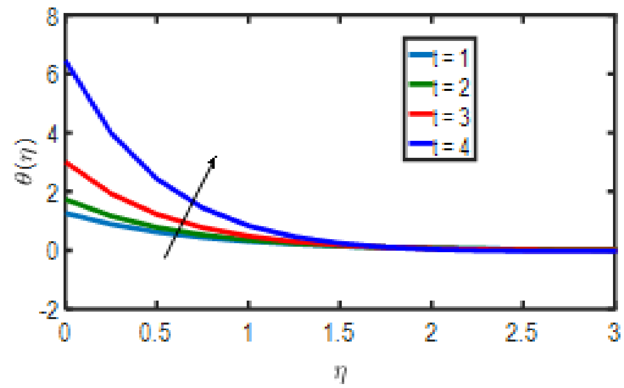

Fig. 10 Variation of θ with η on for different values of t

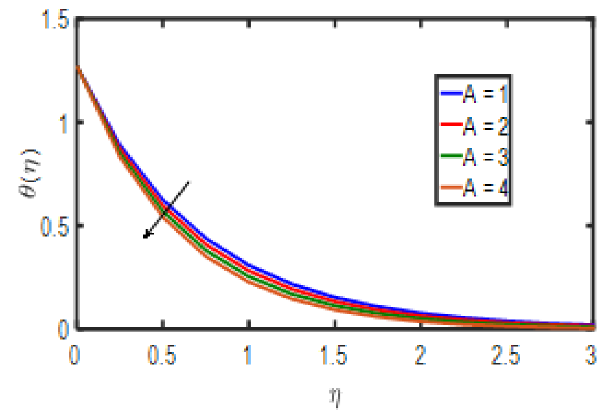

Fig. 11 Variation of θ with η on for different values of A

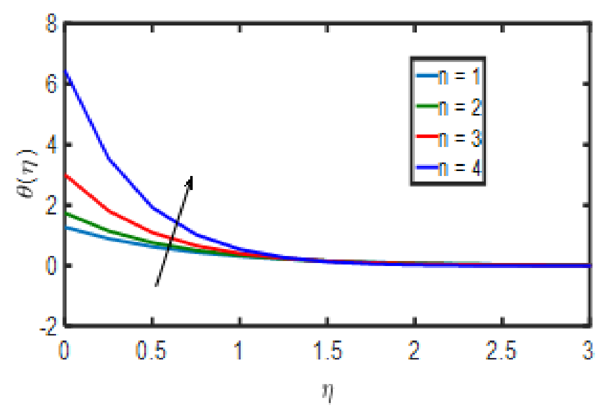

Fig. 12 Variation of θ with η on for different values of n

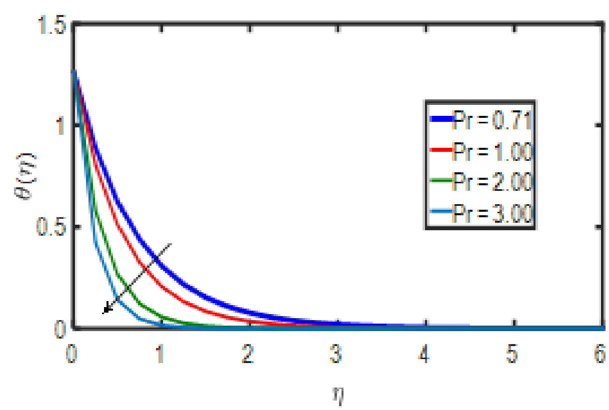

Fig. 13 Variation of θ with η on for different values of Pr

TABLE I CF FOR DIFFERENT PARAMETERS

Gr	Rm	Q	t	Pr	A	ε	Cf
1							1.1541
2							1.4386
3							1.7231
4							2.0076
	0.01						2.3082
	0.02						4.6163
	0.03						6.9245
	0.04						9.2326
		0.1					1.1184
		0.2					1.1216
		0.3					1.1249
		0.4					1.1285
			0.2				1.2755
			0.3				1.4096
			0.4				1.5578
			0.5				1.7217
				1			1.2603
				2			5.4156
				3			7.8720
				4			8.2912
					1		1.7435
					2		2.9224
					3		4.1012
					4		5.2801
						0.02	2.3082
						0.03	3.4622
						0.04	4.6163
						0.05	5.7704

TABLE II NU FOR DIFFERENT PARAMETERS

Q	t	A	Pr	Nu
1				1.8174
2				2.2155
3				2.5328
4				2.8050
	0.1			1.4922
	0.2			1.5156
	0.3			1.5415
	0.4			1.5701
		0.1		1.7152
		0.2		1.7265
		0.3		1.7379
		0.4		1.7492
			0.71	1.8174
			1.00	2.3297
			2.00	3.9860
			3.00	5.5786

V. CONCLUSION

The governing equations for combined effects of heat absorption MHD on convective Rivlin–Ericksen flow past a semi-infinite vertical porous plate with variable temperature and suction was formulated. The plate velocity was maintained at a constant value and the flow was subjected to a transverse magnetic field. Numerical results are presented to illustrate the details of the flow and heat transfer characteristics and their dependence on the material parameters. It is seen that as Up increases, velocity increases. It is seen that the velocity decreases with increasing values of Pr. It is observed that velocity profile u increases strongly far field regime. It is observed the velocity increases as ε is increasing. It is noticed that velocity decreases with an increase in Q. It is observed the velocity decreases as Gr increases. It is noticed that the temperature increases as ε is increasing. It is concluded that the temperature decreases as Q. It is seen that the temperature decreases for increase in A. It is observed that the temperature decreases with increasing of Pr.

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