1145-VT-2229 **Shilpa Bansal*** (shilpa.maths@iitkgp.ac.in), Department of Mathematics, Indian Institute of Technology Kharagpur, Kharagpur, 721302, India, and **Nitin Gupta** (nitin.gupta@maths.iitkgp.ac.in), Department of Mathematics, Indian Institute of Technology Kharagpur, Kharagpur, 721302, India. *Stochastic comparisons in multivariate reversed frailty model.*

Multivariate frailty approach is commonly used to define distributions of random vectors representing lifetimes of individuals/systems and their stochastic comparisons. Here, we study the following multivariate proportional reversed hazard rate model and give sufficient conditions for stochastic order to hold between the two lifetimes and past lifetime vectors with different baseline. Let $\mathbf{X_k} = (X_{k1}, .., X_{kn}), k = 1, 2$ be n-dimensional vectors with joint cdf

$$F_{\mathbf{X_k}}(x_1, .., x_n) = E\left[\prod_{i=1}^{n} G_{ki}^{\Theta_k}(x_i)\right]$$

where $\Theta_k \in R^+$ is random frailty and G_{ki} is baseline cdf of $\tilde{X}_{k,i}(k = 1, 2; i = 1, .., n)$. In literature a generalised bivariate frailty model is defined and its two particular cases were studied. Analogous to this we study the bivariate reversed frailty model assuming dependence among components and give the conditions under which stochastic, likelihood ratio, weak reversed hazard rate orderings hold between two lifetime vectors with different frailties. We also consider a particular case of this model in which the baseline distribution function $F(x_1, x_2|\theta_1, \theta_2)$ is represented in terms of a copula and study stochastic and lower orthant order comparisons among the two lifetime vectors. (Received September 25, 2018)