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B. B. Upadhyay* (bhooshan@iitp.ac.in), Department of Mathematics, Indian Institute of Technology Patna, Patna, Bihar 801103, India. *On generalized vector variational inequalities and nonsmooth multiobjective programming problems in Asplund spaces.*

In this work, we derive the relations between generalized Minty and Stampacchia vector variational inequalities in terms of limiting subdifferential and nonsmooth multiobjective programming problem in Asplund spaces. Under approximate convexity hypotheses, equivalence among the solutions of these vector variational inequalities and local quasi efficient solution of nonsmooth multiobjective programming problem are studied. We also introduce the weakformulations of considered vector variational inequalities in terms of limiting subdifferential and investigate the relations between their solution and local weak quasi efficient solution of nonsmooth multiobjective programming problem. Furthermore, by employing generalized version of KKM-Fan theorem, we derive existence results for considered generalized Minty and Stampacchia vector variational inequalities. The results presented in this paper extend, generalize and sharpen several known results in literature such as Giannessi (1997), Lee (2000), Lee and Lee (2005) and Fang and Hu (2009) to more general spaces namely Asplund spaces and to a class of nonconvex functions using powerful tool of limiting subdifferential.

Keywords: Minty vector variational inequality; Approximate convex functions; Quasi efficiency; KKM-Fan theorem (Received September 14, 2020)