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**S. B. Mulay\*** (mulay@math.utk.edu). *Polynomials preserving infinite subsets upto M-equivalence.*

Let  $R$  be an integral domain,  $E$  an infinite subset of  $R$  and  $f$  a non-constant uni-variate polynomial with coefficients in  $R$ . If the  $m$ -adic closures of  $E$  and  $f(E)$  coincide for all maximal ideals of  $R$ , then  $E$  is said to be  $M$ -equivalent to  $f(E)$ . When  $R$  is "arithmetic" in nature the  $M$ -equivalence of  $E$  and  $f(E)$  is possible only when  $f$  is of degree one. As a crollary the known results about fully invariant sets of polynomials can be deduced in a concise andgeneralized manner. Also, this answers a question posed by Gilmer and Smith regarding polynomial equivalence of  $E$  and  $f(E)$ . (Received August 17, 2005)