South East Asian J. of Mathematics and Mathematical Sciences
Vol. 21, No. 3 (2025), pp. 63-80

DOI: 10.56827/SEAJMMS.2025.2103.5 **ISSN (Online): 2582-0850**

ISSN (Print): 0972-7752

RESULTS ON UNIQUENESS OF CERTAIN TYPE OF NON-LINEAR DIFFERENTIAL POLYNOMIALS SHARING A VALUE

Biswajit Saha and Subrata Pal*

Department of Mathematics,
Government General Degree College,
Muragachha, Nadia - 741154, West Bengal, INDIA

E-mail : sahabiswajitku@gmail.com

*Sahebpara Malithapara Primary School,
Karimpur New Circle, Natidanga, Nadia - 741152, West Bengal, INDIA

E-mail : subratapal.pal1993@gmail.com

(**Received:** *Apr. 17, 2025* **Accepted:** *Dec. 12, 2025* **Published:** *Dec. 30, 2025)*

Abstract: In the paper we discuss the distribution of uniqueness and its elements over the extended complex plane from different polynomials of view. We obtain a new result regarding the structure and position of uniqueness. This new result has immense application like classifying different expressions to be or not to be unique. The principle objective of the paper is to study the uniqueness of meromorphic functions when sharing a value with weight $l(\geq 0)$ and its nonlinear differential polynomials. We prove a result which significantly generalize the result of Waghamore and Maligi [Commun. Math. **28** (2020), 289-299] by considering the difference polynomials of the form $f^n(f-1)^m P[f]$ and citing two proper examples we have shown that the result is true only for a particular case. Finally we present the compact version of the same result as an improvement.

Keywords and Phrases: Uniqueness, Entire function, difference-differential polynomial.

2020 Mathematics Subject Classification: Primary 30D35, Secondary 39A10.