South East Asian J. of Mathematics and Mathematical Sciences
Vol. 17, No. 1 (2021), pp. 01-16

ISSN (Online): 2582-0850

ISSN (Print): 0972-7752

SOME SPECIAL FAMILIES OF HOLOMORPHIC AND AL-OBOUDI TYPE BI-UNIVALENT FUNCTIONS ASSOCIATED WITH (m, n)-LUCAS POLYNOMIALS INVOLVING MODIFIED SIGMOID ACTIVATION FUNCTION

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(**Received:** *May 17, 2020* **Accepted:** *Dec. 30, 2020* **Published:** *Apr. 30, 2021)*

Abstract: The aim of the present paper is to introduce some special families of holomorphic and Al-Oboudi type bi-univalent functions associated with (m, n)-Lucas polynomials involving modified sigmoid activation function $\phi(s) = \frac{2}{1+e^{-s}}$, $s \geq 0$ in the open unit disc $\mathfrak{D}$. We investigate the upper bounds on initial coefficients for functions of the form $g_\phi(z) = z + \sum_{j=2}^{\infty} \phi(s) d_j z^j$, in these newly introduced special families and also discuss the Fekete-Szegö problem. Some interesting consequences of the results established here are also indicated.

Keywords and Phrases: Holomorphic function, Bi-univalent function, Fekete - Szegö inequality, (m, n)-Lucas polynomials, Modified sigmoid function.

2020 Mathematics Subject Classification: Primary : 30C45, 30C50 Secondary: 11B39.