KŌDAI MATH. SEM. REP.
24 (1972), 62—74

ON DEFICIENCIES OF AN ENTIRE ALGEBROID FUNCTION

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§1. Niino and Ozawa [1, 2] proved some interesting results for entire algebroid functions. A typical one is the following:

Let $f(z)$ be a two-valued entire transcendental algebroid function and a_1, a_2 and a_3 be different finite numbers satisfying

$$\sum_{j=1}^{3} \delta(a_j, f) > 2.$$

Then at least one of $\{a_j\}$ is a Picard exceptional value of f.

They also proved in the three- and four-valued cases that a more weaker condition on deficiencies, under a "non-proportionality" condition, implies the existence of Picard exceptional values (Theorem 1 in [2]).

In this paper we shall discuss the five-valued case and establish the similar conclusions as in Theorem 1 in [2] under a different assumption on deficiencies (see also Ozawa [3]). Those are the following:

Theorem 1. *Let $f(z)$ be a five-valued transcendental entire algebroid function defined by an irreducible equation*

$$F(z, f) \equiv f^5 + A_4 f^4 + A_3 f^3 + A_2 f^2 + A_1 f + A_0 = 0,$$

where A_4, A_3, A_2, A_1 and A_0 are entire functions. Let a_j, $j=1, \cdots, 6$, be different finite numbers satisfying

$$\sum_{j=1}^{6} \delta(a_j, f) + \delta(a_m, f) + \delta(a_n, f) > 7$$

for every pair m, n $(m \neq n)$, $m, n = 1, \cdots, 6$, where $\delta(a_j, f)$ indicates the Nevanlinna-Selberg deficiency of f at a_j. Further assume that any four of $\{F(z, a_j)\}$ are not linearly dependent. Then one of $\{a_j\}_{j=1}^{6}$ is a Picard exceptional value of f.

Theorem 2. *Let $f(z)$ be the same as in Theorem 1. Let $\{a_j\}_{j=1}^{7}$ be different finite numbers satisfying*

$$\sum_{j=1}^{6} \delta(a_j, f) + \delta(a_m, f) + \delta(a_n, f) > 7$$

for every pair m, n $(m \neq n)$, $m, n = 1, \cdots, 6$, and

Received January 27, 1971.