Ed Janowski, Department of Mathematics, University of Rhode Island, Kingston, RI 02881, M. R. S. Kulenovic* (kulenm@math.uri.edu), Department of Mathematics, University of Rhode Island, Kingston, RI 02881, and Z. Nurkanovic (nurkanm@yahoo.com), Department of Mathematics, University of Tuzla, 75000 Tuzla, Bosnia-Herzegovina. Stability of the $k$-th order Lyness’ Equation with a Period-$k$ Coefficient.

We first investigate the stability of the period-three solution of Todd’s equation with a period-three coefficient:

$$x_{n+1} = \frac{1 + x_n + x_{n-1}}{p_n x_{n-2}}, \quad n = 0, 1, \ldots$$

where

$$p_n = \begin{cases} 
\alpha, & \text{for } n = 3l \\
\beta, & \text{for } n = 3l + 1 \\
\gamma, & \text{for } n = 3l + 2, \quad l = 0, 1, \ldots .
\end{cases} \quad (1)$$

Then for $k = 2, 3, \ldots$ we extend our stability result to the $k$-order equation,

$$x_{n+1} = \frac{1 + x_n + \ldots + x_{n-k+2}}{p_n x_{n-k+1}}, \quad n = 0, 1, \ldots$$

where $p_n$ is a periodic coefficient of period $k$ with positive real values and $x_{-k+1}, \ldots, x_{-1}, x_0 \in (0, \infty)$. We will prove the stability of the period $k$ solution of the above equation. (Received October 04, 2004)