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FORMULAS OF VARIATION OF SOLUTION FOR  
QUASI-LINEAR CONTROLLED NEUTRAL DIFFERENTIAL  
EQUATIONS WITH DISCONTINUOUS AND CONTINUOUS  
INITIAL CONDITIONS

Formulas of variation of solution play an important role in proving necessary conditions of optimality for optimal problem [1].

In the present work, formulas of variation of solution for the neutral controlled differential equation

$$\dot{x}(t) = \sum_{j=1}^k A_j(t)\dot{x}(\eta_j(t)) + f\left(t, x(\tau_1(t)), \dots, x(\tau_s(t)), u(\theta_1(t)), \dots, u(\theta_\nu(t))\right)$$

with the discontinuous (continuous) initial condition

$$x(t) = \varphi(t), \quad t < t_0, \quad x(t_0) = x_0 \quad (x(t) = \varphi(t), \quad t \leq t_0)$$

are obtained.

Finally we note that the formulas of variation of solution for various classes of neutral differential equations are given in [2]–[6].

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