

$$\begin{aligned}
x_1(t) = & -((0.06 * x_1(t) * (1 - \exp(d * x_5(t)))) - (0.05 * x_3(t) * (\exp(d * x_5(t))))) - \\
& - ((0.5 * x_1(t) * (\exp(d * x_5(t))) * (0.3 + x_6(t))) * AE - (0.1 * x_2(t) * (1 - \exp(d * x_5(t))))) ;
\end{aligned} \tag{1}$$

$$\begin{aligned}
x_2(t) = & (((0.5 * x_1(t) * (\exp(d * x_5(t))) * (0.3 + x_6(t))) * AE - \\
& - (0.1 * x_2(t) * (1 - \exp(d * x_5(t))))) + (0.8 * x_3(t) * (\exp(d * x_5(t))) * (0.3 + x_6(t)) - \\
& - (0.4 * x_2(t) * ((1 - \exp(d * x_5(t))^2)))) - (x_2(t) * (x_6(t) - x_4(t)))) ;
\end{aligned} \tag{2}$$

$$\begin{aligned}
x_3(t) = & ((0.06 * x_1(t) * (1 - \exp(d * x_5(t)))) - (0.05 * x_3(t) * (\exp(d * x_5(t))))) - \\
& - (0.8 * x_3(t) * (\exp(d * x_5(t))) * (0.3 + x_6(t)) - (0.4 * x_2(t) * ((1 - \exp(d * x_5(t))^2)))) ;
\end{aligned} \tag{3}$$

$$x_4(t) = (x_2(t) * (x_6(t) - x_4(t))); \tag{4}$$

$$\begin{aligned}
\textbf{if}((x_5(t)/LCC) < 1) & -- x_5(t) = x_5(t) * (GU - (x_5(t)/LCC)); \\
\textbf{else} & -- x_5(t) = x_5(t) * (1 - (x_5(t)/LCC));
\end{aligned} \tag{5}$$

$$\begin{aligned}
x_6(t) = & 0.2 * ((x_2(t-5) + 0.5 * x_4(t-5)) * (\exp(d * x_5(t-5))) * (1 - x_6(t)) * (1 - x_7(t)) * AE - \\
& - ((0.1 + 1 - \exp(d * x_5(t))) * (0.1 + x_7(t)) * x_6(t) * 0.2)
\end{aligned} \tag{6}$$

$$x_7(t) = ((x_6(t-10) * (\exp(d * x_5(t-10))))) * (1 - x_7(t)) * 0.1 * AE - (x_7(t) * 0.005) \tag{7}$$