Appendix

Determination of extrema of the function represented by equation (2)

$$A = \alpha D\left[t - \frac{1}{2}(t - T + 1)^2\right] \quad (2)$$

The first derivative of the equation 2, the slope of the tangent is given by following equation.

$$\frac{dA}{dt} = \alpha D[1 - (t - T + 1)] \quad (2.1)$$

Now, equations 2.1 can be used to find the upper limit or lower limit of the above function (e.g. equation 2). For example, the above function (equation 2) reaches its maximum or minimum when the slope of the tangent line is zero and therefore,

$$\frac{dA}{dt} = 0 \quad (2.3)$$

Second derivative of equation 2 is

$$\frac{d^2A}{dt^2} = -\alpha D \quad (2.4)$$

A and D are positive, and therefore negative sign of the above equation indicates a maximum

From equation 2.1 and 2.3

$$\alpha D[1 - (t - T + 1)] = 0 \quad (2.5)$$

Therefore, the virus shows it highest strength when the temperature reaches T(kelvin).