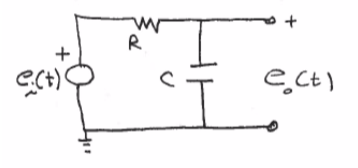
1. C)

Given:

Using KVL and Laplace:

Solve for transfer function between and :

Resolve the transfer function into differential equations:

D)

From data: Resistance for circuit

Sample calculation: , ,

|  |  |  |
| --- | --- | --- |
| Method | Tau Adjusted (s)\* | Calculated Capacitance (nF) |
| Output 1 Initial Slope | 6.68155e-4 | 60.19 |
| Output 1 63.2% | 6.54000e-4 | 58.92 |
| Output 2 Initial Slope | 6.35428e-4 | 57.25 |
| Output 2 63.2% | 6.52000e-4 | 58.74 |
| Average |  | 58.77 |

\*Adjusted Tau is the value found taken into account that the data did not start at time = 0.