1. Find the Laplace transform of f(t)= Ae-atu(t)Þ
2. Find the inverse Laplace transform of F(s) = 1/(s + 3)2
3. Given the following differential equation, solve for y(t) if all initial conditions are zero. Use the Laplace transform.
4. Find the Laplace transform of f(t) = te-5t
5. Find the inverse Laplace transform of F(s) = 10/[s(s + 2)(s + 3)2]
6. Find the transfer function of
7. Find the transfer function of
8. Find the transfer function relating the capacitor voltage VC(s) to the input voltage V(s). If L = 2 units, C = 3 units and R = 5 units.



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| Q1 | Reduce the block diagram shown in Figure to a single transfer function,  T(s) = C(s)/R(s)  Convert the block diagram in to signal flow graph. |  |
| Q2 | Find the closed-loop transfer function, T(s) = C(s)/R(s) for the system shown in Figure using block diagram reduction.  Convert the block diagram in to signal flow graph. |  |
| Q3 | Find the equivalent transfer function,  T(s) = C(s)/R(s), for the system shown in Figure.  Convert the block diagram in to signal flow graph. |  |
| Q12 | Using Mason’s rule, find the transfer function,  T(s) = C(s)/R(s), for the system represented in Figure |  |
| Q13 | Using Mason’s rule, find the transfer function,  T(s) = C(s)/R(s), for the system represented in Figure |  |
| Q14 | Use Mason’s rule to find the transfer function of the system shown in Figure. |  |