

Q: Which one of the options given is the inverse Laplace transform of $\frac{1}{s^3-s}$?
 $u(t)$ denotes the unit-step function.

(A) $\left(-1 + \frac{1}{2}e^{-t} + \frac{1}{2}e^t\right)u(t)$

(B) $\left(\frac{1}{3}e^{-t} - e^t\right)u(t)$

(C) $\left(-1 + \frac{1}{2}e^{-(t-1)} + \frac{1}{2}e^{(t-1)}\right)u(t-1)$

(D) $\left(-1 - \frac{1}{2}e^{-(t-1)} - \frac{1}{2}e^{(t-1)}\right)u(t-1)$

(GATE ME 2023)