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