$$s^2 X(s)\Big|_{s=0} = \frac{1}{1^2} = \boxed{B = 1}$$

$$(s+1)^2 X(s)\Big|_{s=-1} = \frac{1}{(-1)^2} = \boxed{D = 1}$$

$$X(s) = \frac{1}{s^2(s+1)^2} = \frac{A}{s} + \frac{1}{s^2} + \frac{C}{s+1} + \frac{1}{(s+1)^2}$$

$$X(s)\Big|_{s=1} = \frac{1}{1^2 2^2} = A + \frac{1}{1^2} + \frac{C}{2} + \frac{1}{2^2}$$

$$\frac{1}{4} = A + 1 + \frac{C}{2} + \frac{1}{4}$$

$$\boxed{A = -1 - \frac{C}{2}}$$

$$X(s)\Big|_{s=2} = \frac{1}{4(3)^2} = \frac{A}{2} + \frac{1}{2^2} + \frac{C}{(2+1)} + \frac{1}{(3)^2}$$

$$\frac{1}{36} = \frac{A}{2} + \frac{1}{4} + \frac{C}{3} + \frac{1}{9}$$

$$\frac{1}{36} = \frac{-1}{2} - \frac{C}{4} + \frac{1}{4} + \frac{C}{3} + \frac{1}{9} \quad \text{(Substitute for A)}$$