$$X(0) = \frac{2s^3 + 8s^2 + 4s + 8}{s(s+1)(s^2+4s+8)}$$

$$\frac{K_1}{s} + \frac{K_2}{s+1} + \frac{A}{s+2+j2} + \frac{A}{s+2-j}$$

$$K_1 = s \, X(s)\Big|_{s=0}$$

$$K_1 = s \, \frac{2s^3 + 8s + 4s + 8}{s(s+1)(s^2+4s+8)} = \frac{8}{8} = 1 \qquad K_1 = 1$$

$$K_2 = (s+1) \, X(s)\Big|_{s=1}$$

$$K_2 = (s+1) \, \frac{2s^3 + 8s^2 + 4s + 8}{s(s+1)(s^2+4s+8)} = \frac{-2+8-4+8}{(-1)(1-4+8)} = \boxed{-2}$$

$$A = (s+2+j2) \, X(s)\Big|_{s=2-j}$$

$$= \frac{2s^3 + 8s^2 + 4s^2 + 8}{s(s+1)(s-2-j2)} \quad \Rightarrow \quad 2s^3 = 2[-2-j2]^3$$

$$= 2[(-2)^3 + 3(-2)^2(-j2) + 3(-2)(-j2)^2 + (j2)^3]$$

$$= 1j^2 j8 \quad \Rightarrow \quad -8(-1)j = j8$$

$$2s^3 = 2[-8 - j24 + 24 + j8] = 2[16 + j16]$$

$$(2s)^2 = 32 - j32$$

$$8s^2 = 8(-2-j2)^2 = j64$$

$$A = \frac{2s^2 + 8s^2 + 4s + 8}{s(s+1)(s+2-j2)}$$

$$32 - j32 + j64 + 4(-2-j2) + 8 = 32 - j24 \quad \text{Numerador}$$

$$s(s+1)(s+2-j2) = (-2-j2)(-2-j2+1)(-2-j2+2+j2)$$

$$\Rightarrow 24 + j8 \quad \text{Denominador}$$

$$A = \frac{32 + j24}{24 + j8} = \frac{8(4+j3)}{8(3+4)} \cdot \frac{3-j}{3-j} = \frac{15 - j5}{10}$$

$$A = 1.5 - j0.5$$

$$X(s) = \frac{1}{s} + \frac{-2}{(s+1)} + \frac{1.5 + j0.5}{s+2+j2} + \frac{1.5 - j0.5}{s+2-j2}$$