

Instruction: Hand in your work with name and code to my desk by 10.00 am. of the due date. DO NOT copy homework from your classmates or lend it to others. Anyone who violates this regulation will be given -10 for the homework.

1. Calculate the inverse Laplace transform of the following:

(a) $X_1(s) = \frac{s+3}{s(s+1)(s+2)}$ (5 points)

(b) $X_2(s) = \frac{s+5}{s^3+5s^2+17s+13}$ (5 points)

(c) $F(s) = \frac{e^{-(s-1)}+3}{s^2-2s+5}$ (5 points)

2. Find the Laplace transforms of the following functions:

(a) $te^{-1}\mathbb{1}(t)$ (5 points)

(b) $\cos(\omega_1 t)\cos(\omega_2 t)\mathbb{1}(t)$ (5 points)

(c) $e^{-2t}\cos(5t+\theta)\mathbb{1}(t)$ (5 points)