

Quizzes of TTK4225 - Systems Theory, Autumn 2020

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Question 77

which modes correspond to this Laplace transform?

$$Y(s) = \frac{s + 1}{(s + 2)(s + 3)(s + 4)}$$

Question 78

which modes correspond to this Laplace transform?

$$Y(s) = \frac{s - 1}{(s + 2)(s + 3)(s + 4)}$$

Question 79

what is the free evolution the LTI system

$$\ddot{y} = 3\dot{y} + 2y - \dot{u} + 2u$$

starting from the initial conditions $\dot{y}(0) = -1$, $y(0) = 1$?

Question 80

The inverse Laplace transform of $\frac{1}{s+1}$ is

- ① $t + 1$
- ② e^t
- ③ e^{-t}
- ④ $e^{-t} + e^t$
- ⑤ I do not know

Question 81

The Laplace transform of t is

1 s

2 $\frac{1}{s}$

3 $\frac{1}{s^2}$

4 e^{-s}

5 I do not know

Question 82

The Laplace transform of $e^{at}f(t)$ is

- 1 $F(s + a)$
- 2 $F(s - a)$
- 3 $\frac{F(s)}{s - a}$
- 4 $\frac{F(s)}{s + a}$
- 5 I do not know

Question 83

The Laplace transform of $\frac{\partial f(t)}{\partial t}$ is

- 1 $\frac{F(s)}{s}$
- 2 $-F(s)$
- 3 $\frac{\partial F(s)}{\partial s}$
- 4 $sF(s) - f(0)$
- 5 I do not know

Question 84

The Laplace transform of $\sin \omega t$ is

- 1 $\frac{\omega}{s^2 + \omega^2}$
- 2 $\sin \omega s$
- 3 $\cos \omega s$
- 4 $\frac{s}{s^2 + \omega^2}$
- 5 I do not know