Course Questions for Test 3

- Method of variation of parameters in the case $n = 2$:
  We consider the second-order linear differential equation

  $$y'' + P(x)y' + Q(x)y = f(x),$$

  where P, Q and f are continuous. A general solution is given by:

  $$y_c(x) = c_1 y_1(x) + c_2 y_2(x),$$

  where c_1 and c_2 are constants.
  Of what form is a particular solution ? To find this, we need to impose a condition, what is this condition ?

- Give the definition of the Laplace transform.

- Give the definition of a function of exponential order as $t \to \infty$. Then state the theorem which gives the existence of the Laplace transform.

- State the theorem about the Laplace transform of derivates.

- State the theorem about the Laplace transform of integrals.

- State the theorem about translation on the s-Axis.