Electrical Power Engineering Fundamentals

Departamento de Ingeniería Eléctrica. Universidad Carlos III de Madrid

Module 3. Analysis of AC Circuits. Week 7.

Exercise 1. In the circuit below, find u1(t), u2(t) and check the power balance:

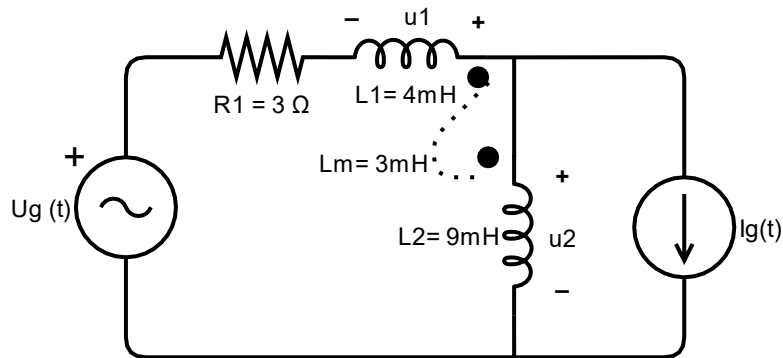$U_g(t) = 180\sqrt{2}\cos(1000t)$ V
$I_g(t) = 12\sqrt{2}\cos(1000t)$ A

Figure 1 AC circuit 1

Exercise 2. In the circuit below, find u1(t), u2(t) and Uig(t):

$U_g(t) = \sqrt{2}\cos(2t+180°)$ V
$I_g(t) = 2\sqrt{2}\sin(2t)$ A

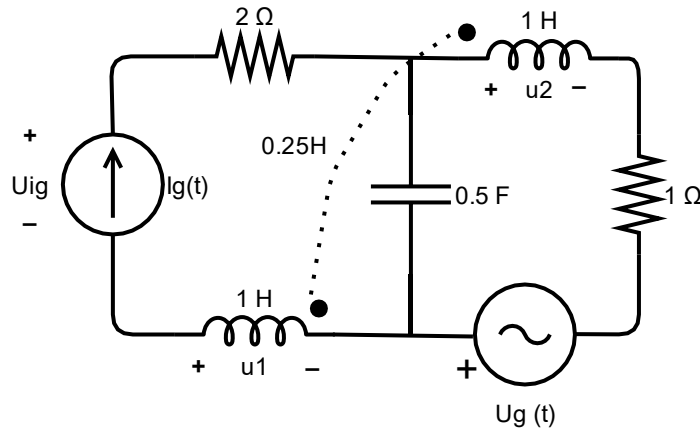

Figure 2 AC circuit 2

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Exercise 3. In the circuit below:

a) Find the Thevenin equivalent between nodes A-B

b) Calculate the current i(t).

$U_g(t) = \sqrt{2}\sin(1000t)$ V
$I_g(t) = \sqrt{2}\cos(1000t)$ A

Figure 3. AC circuit 3
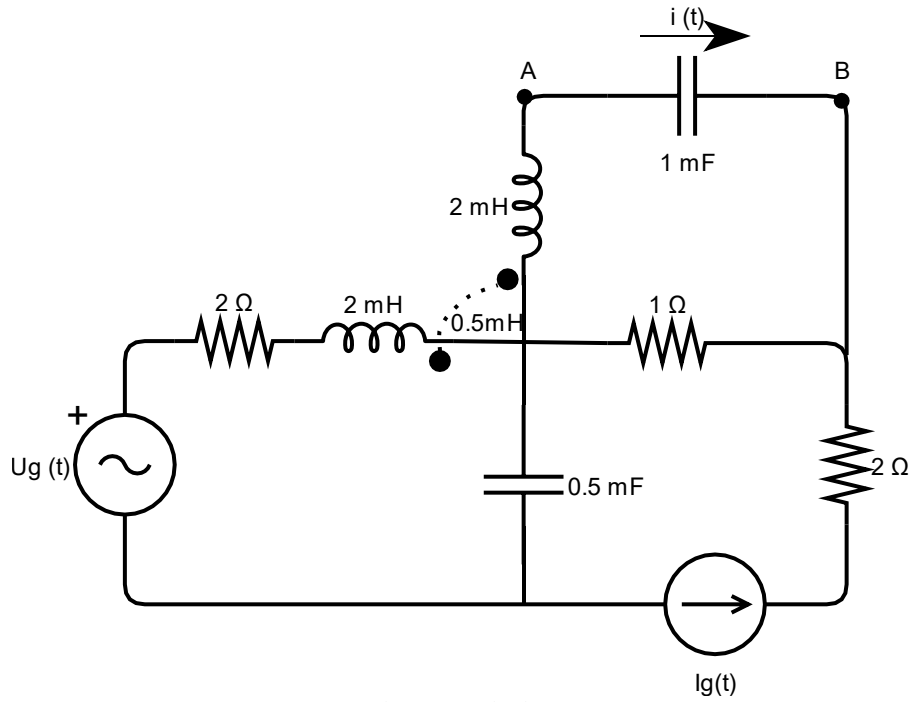
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