



Indian Institute of Technology Dharwad
भारतीय प्रौद्योगिकी संस्थान धारवाड़

EE101 Spring 2021 Homework 5

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Due Sep 12, 2020, 23.59h via Moodle

Instructions:

1. Submit your solutions as a *single PDF file* through Moodle. Submission via other means will not be accepted. Moodle has file size limits as well as bandwidth limits so please do not leave the task of scanning and uploading to the last minute.
2. You may create the PDF either through L^AT_EX, Word etc. or scan a clearly / legibly written sheet of paper. Answers that are not legible / readable will be marked zero. Please view/check the scanned PDF before you submit it.
3. Please attempt and submit the homework by yourself except where instructions specify group work. If you have questions, comments, doubts about any of the questions please reach out to the TAs or instructor. Do not discuss it with other students until the submission deadline. This will help regulate the pace and content of the course.
4. If any data are missing, make reasonable assumptions and state the same with justification.
5. Points for each question are indicated in square brackets in the right margin.
6. There are 2 questions, for a total of 10 points and 0 bonus points.

1. For the circuit in Figure 1: Find inductor current $i(t)$ and plot it, when $v(t) = u(t) - u(t - 5)$ (in Volts), where $u(t)$ is the unit step function. Assume $i(0^-) = 0$. [5]

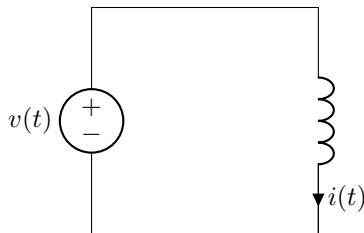


Figure 1: A simple L circuit

2. For the circuit in Figure 2: Find $v(t)$ and plot it, when $i(t) = u(t) - u(t - 1)$ (Amps). Assume $v(0^-) = 0$ and $R=10k\Omega$ and $C=100\mu F$. [5]

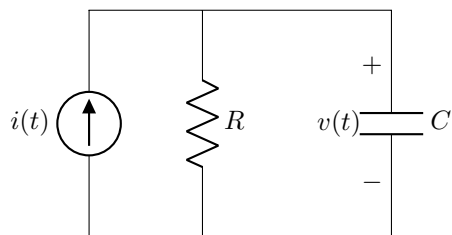


Figure 2: A simple RC circuit