NANYANG TECHNOLOGICAL UNIVERSITY
SCHOOL OF ELECTRICAL & ELECTRONIC ENGINEERING
EE4341/EE6341 ADVANCED ANALOG CIRCUITS
TUTORIAL 11

1. Design a DC-DC Cuk Converter as shown in Fig. 1 with specifications: input = 10 V, load resistance = 10 Ω and load power = 20 W. The switching frequency f_s = 60 kHz. Specify the values of inductors and capacitors. The change in current for both inductors is kept at 15% of their average values. The output ripple voltage must be < 1% and the voltage ripple across C_1 must be < 5%. Assuming that all the components are ideal.

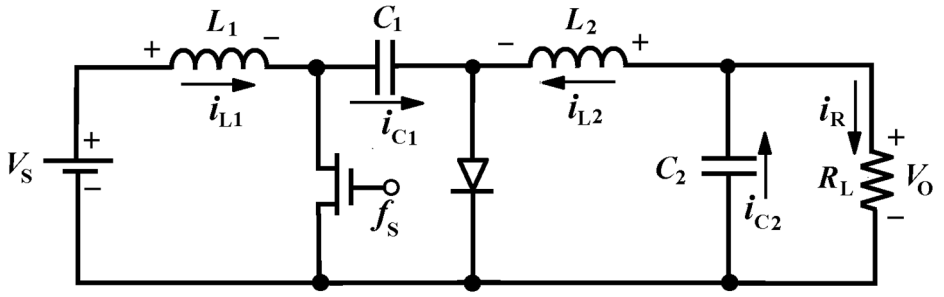

Figure 1

2. For the given Buck Converter shown in Fig. 2, determine:
   (a) The output voltage when the duty ratio is 0.2.
   (b) The output voltage when the duty ratio is 0.6.

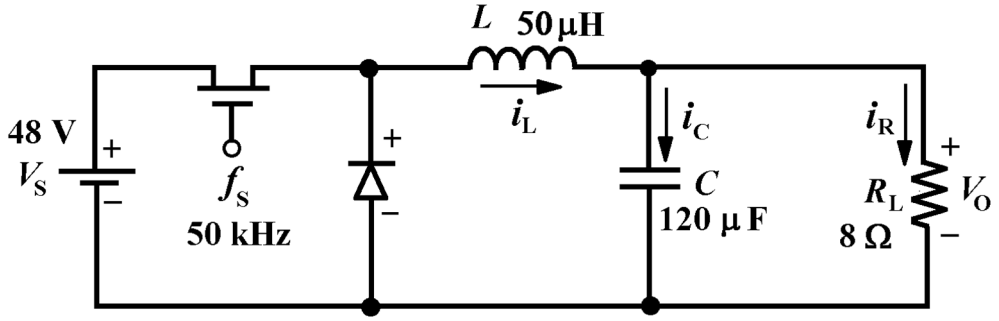

Figure 2