Ahmedabad University

School of Arts and Sciences

Mathematical and Physical Sciences

PHY314 ELECTRICAL CIRCUITS AND ELECTRONICS

Mid Term Examinations (Monsoon 2021)
BSc (Honours) Physics

Total Marks: 25 **Duration: 02 Hours**

Enrolment Number :
Date : October 04, 2021
No. of printed pages : 02

Note: Attempt all 6 questions. Questions 1 – 5 carry 4 marks and Question 6 carries 5 marks.

Q1. What do the following diagrams (a and b) represent/describe. When/where are they used?

Diagram a):

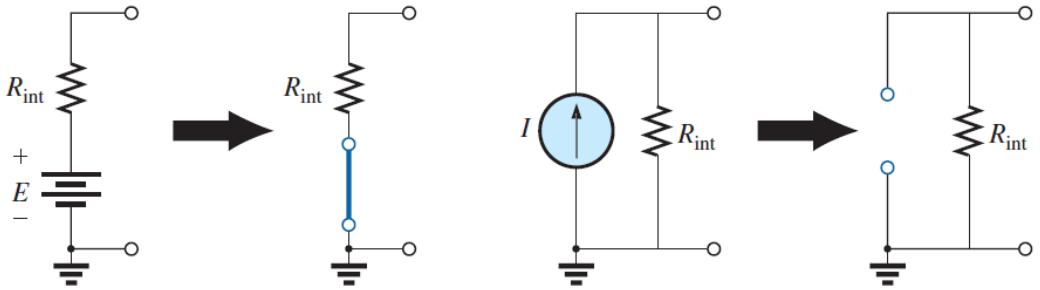
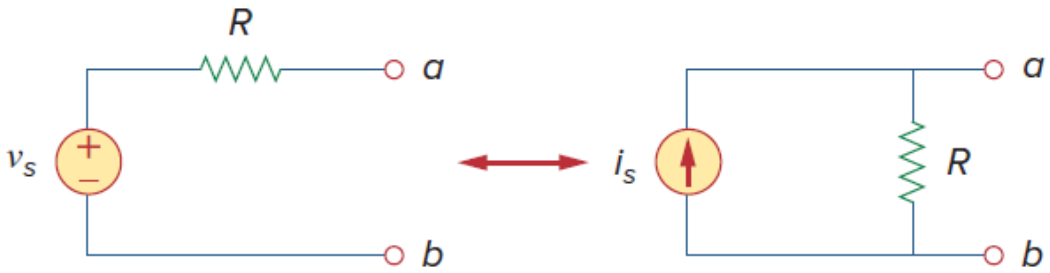
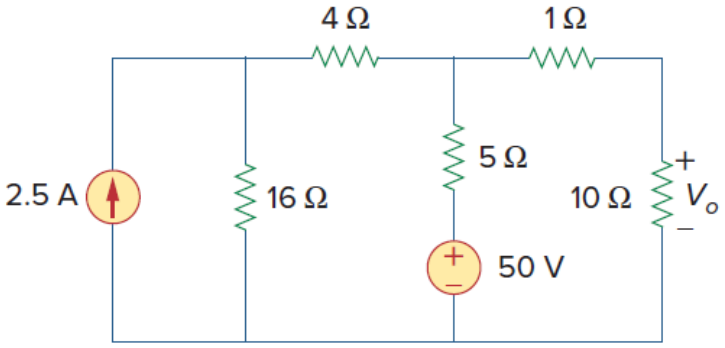


Diagram b):



Q2. Apply Thevenin's theorem to find out the voltage V_0 in the given circuit.



Q3. Discuss the Superposition and Maximum Power Transfer theorems with an example of each.

Q4.For a source free RLC circuit:

a) Draw the circuit diagram
b) Write down the differential equation for the circuit
c) Discuss the solution for an underdamped case.
d) Can you guess how the solution for underdamped case would look like? Draw it.

Q5. Discuss the Forward and Reverse Biased V-I characteristics of a p-n junction diode with the help of a diagram.

Q6. Draw the circuit diagram for a half wave rectifier and a full wave rectifier using a p-n junction diode. Also calculate the ripple factor for the two cases.