Brac University, Department of EEE

Course ID: EEE203L / EEE204 / ECE203L / ECE204

Course Title: Electrical Circuits II Laboratory

Fall 2024

Project

Problem Statement: [CO3, CO5, PO-e(P1, P2), PO-j(A1, A2)] 55

Consider the AC circuit in Fig. Q1. You are tasked to choose a load comprising appropriate passive elements to be connected in terminals a-b, so that the output current experiences a resonance for an input frequency of 1kHz. At the same time, you need to ensure that maximum average power is tranferred to the load at the resonant frequency.

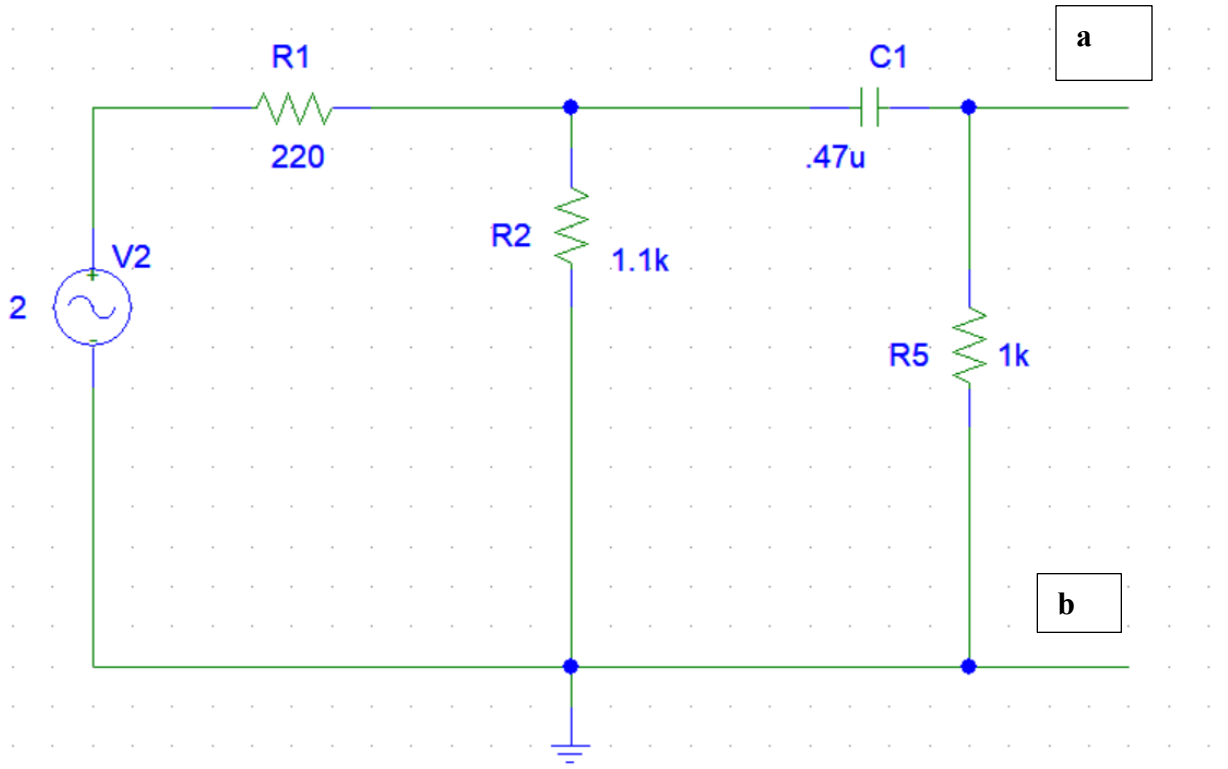

Fig: Q1

To solve the problem, you need to follow a systematic approach, going through the following steps.

(a) Design the circuit through proper calculations based on the basic concepts of AC circuits.
(b) Verify that both the requirements are satisfied through necessary simulations and analyses using a software tool. Find the average power supplied to the load using software.

Carefully go through the marking scheme to get an idea about what is expected of you during grading.

Marking Scheme

Grading tool	Criteria	Marks	Relevant CO
Report	Being able to construct the circuit schematic in the software setup (e.g. circuit construction)	5	CO3
	Choosing and setting of the appropriate simulation method in the software (parametric sweep, ac sweep or others)	8	
	Being able to collect the data from simulation environment	7	
Report	Clear Explanation of the design methodology	8	CO5
	Interpretation of data collected from hardware and software experiments	12	
Presentation	Proper explanation of the workings	5	
	Organization of slides	3	
	Presentation skill	3	
	Response to questions	4	