

**NATIONAL OPEN UNIVERSITY OF NIGERIA  
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA  
FACULTY OF SCIENCES**

**DEPARTMENT OF PURE AND APPLIED SCIENCE**

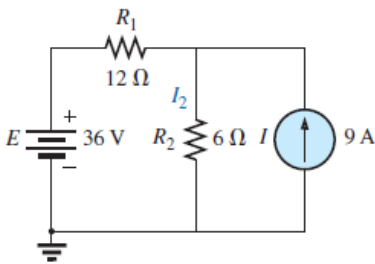
**2021\_1 EXAMINATIONS**

**COURSE CODE:** PHY391  
**COURSE TITLE:** PHYSICS LABORATORY II  
**CREDIT UNIT:** 2  
**TIME ALLOWED:** (2 HRS)

**INSTRUCTION:** *Answer question 1 and any other three questions*

**QUESTION 1**

- a) Define Electrical Network (3 marks)
- b) List four (4) constituents of an Electric circuit (4 marks)
- c) With mathematical illustration, define ohms law (3 marks)
- d) Write network theorems (4 marks)
- e) Define clearly the superposition theorem (3 marks)
- f) Using the superposition theorem, determine the current through resistor  $R_2$  for the network in the network below (4 marks)



In order to determine the effect of the 36 V voltage source, what will you replace the current source with? (4 marks)

## **QUESTION 2**

- a) What are thermistors? **(4 marks)**
- b) Mention three main characteristics of a thermistor **(6 marks)**
- c) Highlight two precautions taken during this experiment **(5 marks)**

## **QUESTION 3**

- a) What will happen if an unfiltered voltage is given to a radio set? **(5 marks)**
- b) Which kind of filter is preferable at heavy loads? **(4 marks)**
- c) Two 4 Ohms resistors are connected in series and the voltage in the circuit is 6V. Calculate the current that flow through each of the 4 Ohms resistor. **(6 marks)**

## **QUESTION 4**

- a) How will you check the polarity of a semiconductor diode? **(6 marks)**
- b) Write four (4) examples of Operational amplifiers op-amps **(4marks)**
- c) State assumptions made for analyzing ideal op-amp **(5 marks)**

## **QUESTION 5**

- a) Mention six apparatus needed for determination of focal length of a given convex lens experiment **(6 marks)**
- b) Discuss briefly what differentiate a converging from diverging lenses **(5 marks)**
- c) Give two precautions for the experiment in 5a. **(4 marks)**