Heaven's Light is Our Guide

Rajshahi University of Engineering & Technology

Department of Electrical & Computer Engineering

Lab Report

Experiment No: 05

Name of the experiment: Three phase sequence test using bulbs.

Course Code	ECE 1202
Course Title	**Circuits and Systems-II Sessional**
Date of experiment	01-10-2024
Date of Submission	08-10-2024

Submitted By:	**Submitted To:**
Name : Waliullah **Roll : 2210035** **Registration : 1089** **Session : 2022-2023** **Department of ECE, RUET**	**Oishi Jyoti** **Assistant Professor,** **Department of Electrical & Computer Engineering, RUET**

Experiment No: 05

Name of the experiment: Three phase sequence test using bulbs.

5.1 Objective:

To understand the concept of phase sequence in three phase system using two bulbs and a capacitor.

5.2 Theory:

This method involves using three identical bulbs connected across each phase. By observing the brightness of the bulbs, we can determine the phase sequence. When the supply is correctly connected in sequence (ABC), all the bulbs will glow equally. If the sequence is reversed (ACB), there will be a difference in brightness due to the phase differences in voltages.

5.3 Required Apparatus:

1. Source
2. VARIAC
3. Two bulbs
4. Capacitor
5. Connecting wires

5.4 Circuit Diagram:

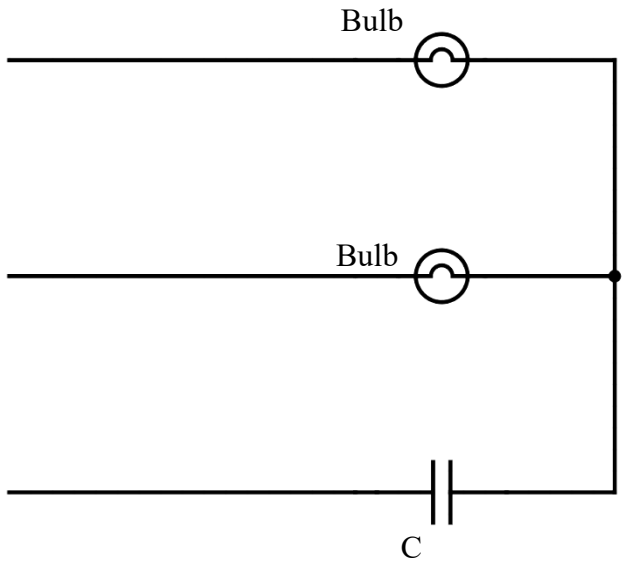

Fig. 5.1: Circuit diagram

5.5 Procedure:

The circuit was built according to the diagram and the result was observed.

5.6 Result:

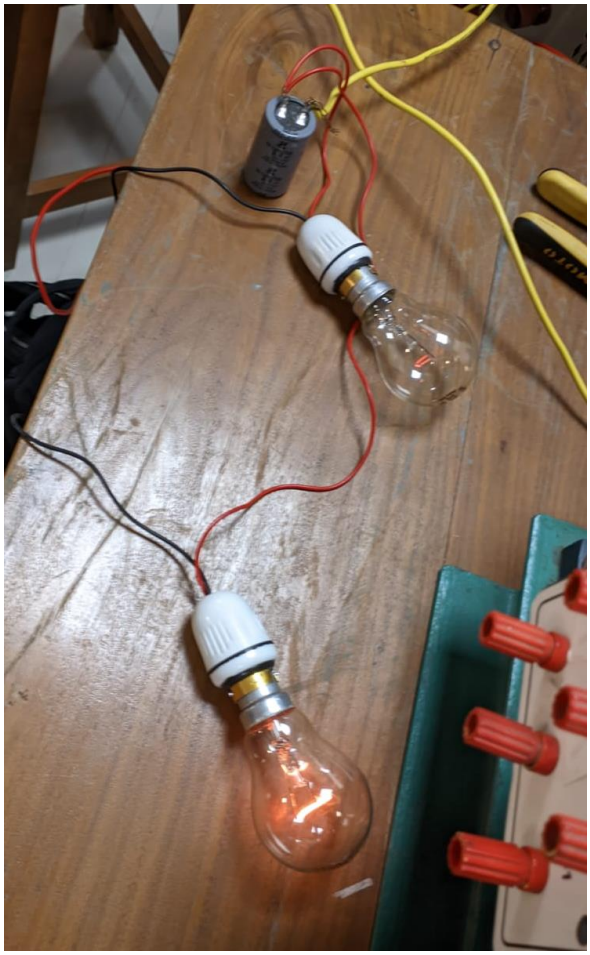

Fig. 5.2: Intensity of different bulb

Here, the terminal connected to the capacitor is a. The bulb which has lower intensity is connected to b and the brighter light is connected to c.

5.7 Discussion:

The experiment effectively demonstrated the use of bulbs to determine the phase sequence of a three-phase supply. When the correct phase sequence (ABC) was applied, all three bulbs glowed with equal brightness, indicating a balanced phase. In contrast, unequal brightness was observed when the sequence was reversed (ACB), highlighting the incorrect phase alignment. This simple method is a practical way to verify phase sequence in the absence of advanced instruments, ensuring the correct operation of three-phase equipment and preventing potential damage or malfunctions.

5.8 Precautions:

1. The connections were made carefully and were double checked

2. The AC voltage source and variac were handled with care maintaining safety measures.

5.9 Reference:

(i) Charles K. Alexandar and Matthew N. O. Sadiku, “Fundamentals of Electric Circuit”, 5th Edition, 1221 Avenue of the Americas, New York

(ii) Wikipedia