Heaven's Light is Our Guide

Rajshahi University of Engineering & Technology

Department of Electrical & Computer Engineering

Lab report-05

Course Code : **ECE 1202**

Course Title : **Circuits and Systems-II Sessional**

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Submitted To:	Submitted By:
Oishi Jyoti **Assistant Professor,** **Department of ECE,** **RUET**	**Name : MD. Taurat kibria** **Roll : 2210028** **Registration : 1082** **Session : 2022-2023** **Department of ECE, RUET**

Experiment no: 05

1. **Experiment name:** Three phase sequence test using bulb.

2. **Objective:** The main objective of this experiment is to understand the concept of phase sequence in three phase system and determine the phase sequence of three phase supply using three bulbs.

3. **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.

4. **Required apparatus:**
   i. Source
   ii. VARIAC
   iii. Two bulbs
   iv. Connecting wires
   v. One capacitor

5. **Circuit diagram:**

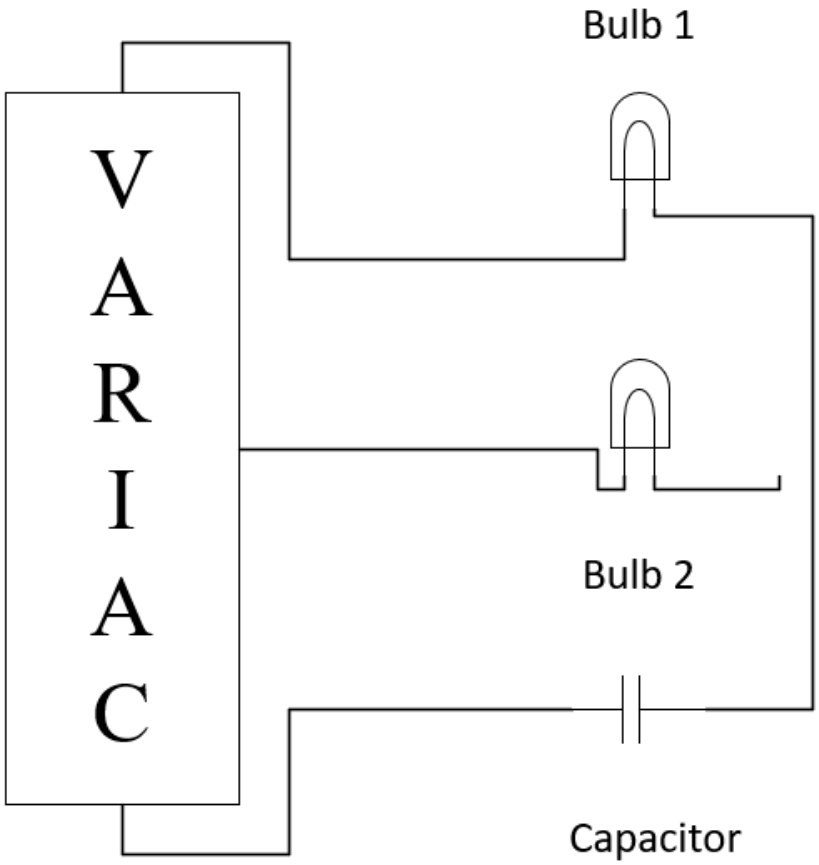

Figure: Phase sequence with bulb

6. **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.

7. **Precautions:**
   i. Ensured all connections were secured and double checked before powering the circuit to avoid short circuit or any other safety hazard.
   ii. Handled measuring equipment carefully to get accurate reading.
   iii. Been cautious of the power rating of the instruments to avoid overheating.

8. **References:**

   i. Fundamentals of Electric Circuits; Charles K. Alexander and Mathew N. O. Sadiku
   ii. Wikipedia (delta connected three phase balanced system)
   iii. Google