

*Heaven's Light is Our Guide*



# Rajshahi University of Engineering & Technology

Department of Electrical & Computer Engineering

## Lab Report

Course Code	<b>ECE 1202</b>
Course Title	Circuit and Systems II Sessional
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<b>Submitted By:</b>	<b>Submitted To:</b>
<b>Name : Noushin Tabassum</b>	<b>Oishi Jyoti</b>
<b>Roll : 2210058</b>	<b>Assistant Professor</b>
<b>Registration : 1112</b>	<b>Department of Electrical and</b>
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<b>Department of ECE, RUET</b>	<b>RUET</b>

**Name of the Experiment:** Three phase sequence test using bulbs.

**Theory:**

The three-phase sequence test using bulbs is a simple experiment to determine the phase sequence (ABC or ACB) of a three-phase power supply. Three bulbs are connected to the three phases of the supply in a star configuration. When the supply is switched on, the brightness of the bulbs indicates the phase sequence. If the bulbs light up in a clockwise rotation ( $A \rightarrow B \rightarrow C$ ), the phase sequence is ABC. If the bulbs light up in the reverse order ( $A \rightarrow C \rightarrow B$ ), the phase sequence is ACB. This method helps ensure the correct operation of three-phase motors and other equipment.

**Required Apparatus:**

- Two bulbs (preferably of the same wattage)
- Three-phase AC supply
- Connecting wires
- Capacitor
- Multimeter

**Circuit diagram:**

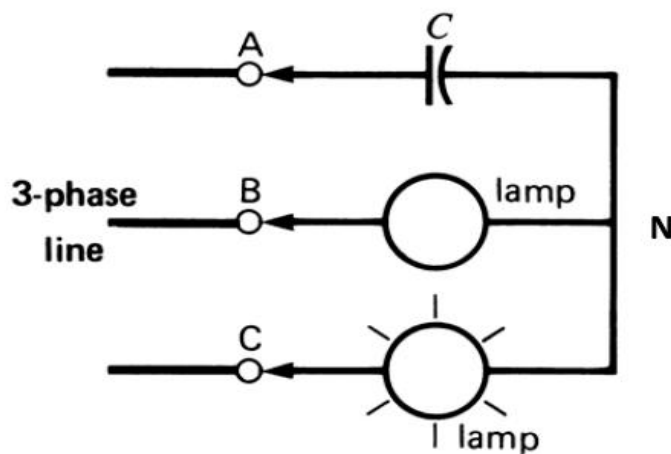


Fig: Three phase sequence test using bulbs

**Result:**

The three phase system has its sequence according to its rotation in clockwise or anti clockwise direction. When A is connected with capacitor, B and C are connected with two existing bulbs in a order, one bulb gets lighted more brightly in comparison with others. Again, when the connection order between two bulbs and two terminals B, C is reversed, then we observe the other bulb to shine brightly this time.

**Conclusion:**

In the three-phase sequence test using bulbs, the experiment helps identify the phase sequence (or rotation) of a three-phase system. By connecting three bulbs to the phases, the brightness pattern indicates the phase rotation. If the bulbs light up sequentially in a clockwise manner, the system has a correct phase sequence (positive sequence). Conversely, an incorrect or counter-clockwise lighting indicates a negative sequence. This test is important in ensuring proper equipment operation in industrial systems, as incorrect phase sequences can lead to damage or malfunction of three-phase machinery.