

*Heaven's Light is Our Guide*



# Rajshahi University of Engineering & Technology

Department of Electrical & Computer Engineering

## Lab Report

Experiment No: 04

Name of the experiment: Three phase sequence test using six phase motor.

Course Code	ECE 1201
Course Title	Circuit & Systems II Sessoinal
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## Experiment No: 04

**1. Name of The Experiment:** Three phase sequence test using six phase motor.

**2. Objectives:** The main objective of this experiment is to understand the concept of phase sequence in three phase system and study the effect of phase sequence on the direction of rotation in six phase motor.

### 3. Theory:

In a three-phase electrical system, the phase sequence refers to the order in which the voltages of the three phases (a, b, C) reach their peak values. The sequence can be either forward (abc) or reverse (cba). This sequence directly impacts the direction of rotation in AC motors. In a six-phase motor, which consists of two sets of three-phase windings, the direction of rotation depends on the phase sequence of the input supply. A forward sequence results in clockwise rotation, while reversing the sequence causes counterclockwise rotation.

### 4. Required Apparatus:

- i. Source
- ii. VARIAC
- iii. Three phase motor
- iv. Connecting wires

### 5. Rotation Diagram:

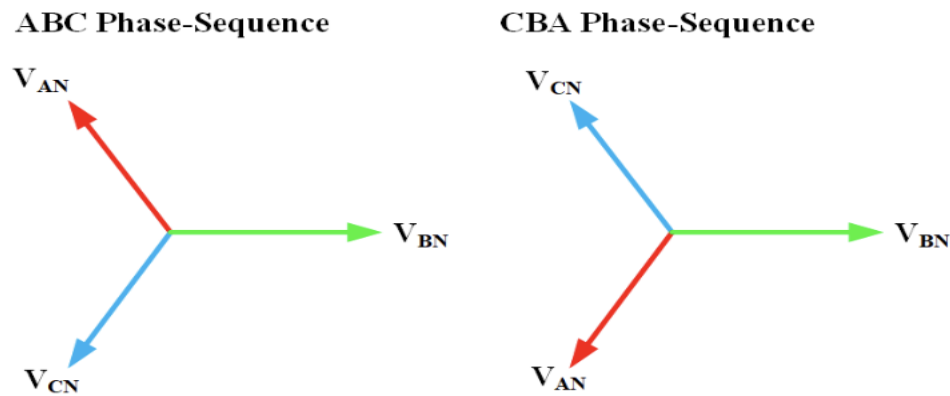


Figure: Phase sequence

**6. Result:** The motor changes its rotation from clockwise to anti-clockwise when the phase sequence is changed.

## **7. Discussion:**

It was shown by the experiment that altering the phase sequence changed the motor's direction of rotation. A forward sequence (abc) was observed to cause clockwise rotation, while a reverse sequence (cba) resulted in counterclockwise rotation. The critical role of phase sequence in motor control was confirmed, as incorrect sequencing could lead to undesired motor behavior or even damage. The response of the six-phase motor demonstrated the importance of verifying the correct phase sequence in three-phase systems to ensure proper operation in industrial applications.

## **8. Precautions:**

- i. All connection should be perfectly connected.
- ii. Been cautious of the power rating of the instruments to avoid overheating
- iii. The rotation should be measured from the front side of the motor.

## **9. Reference:**

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