Least count of polarizor = 2°
Least count of vernier scale on rotating table = 2'

**Observations for Verification of the Law of Malus:**

| Polarizor Angle (degrees) | Photodetector Current (A) |
|---|---|
| 298 | 2.11 x 10-5 |
| 308 | 1.35 x 10-4 |
| 318 | 8.00 x 10-4 |
| 328 | 1.70 x 10-3 |
| 338 | 2.80 x 10-3 |
| 348 | 4.10 x 10-3 |
| 358 | 5.30 x 10-3 |
| 8 | 6.40 x 10-3 |
| 18 | 7.00 x 10-3 |
| 28 | 7.40 x 10-3 |
| 38 | 7.00 x 10-3 |
| 48 | 6.20 x 10-3 |
| 58 | 5.30 x 10-3 |
| 68 | 4.30 x 10-3 |
| 78 | 3.00 x 10-3 |
| 88 | 2.00 x 10-3 |
| 98 | 9.00 x 10-4 |
| 108 | 2.00 x 10-4 |
| 118 | 2.05 x 10-5 |
| 128 | 1.15 x 10-4 |
| 138 | 7.00 x 10-4 |
| 148 | 1.50 x 10-3 |
| 158 | 2.80 x 10-3 |
| 168 | 4.20 x 10-3 |
| 178 | 5.80 x 10-3 |
| 188 | 6.50 x 10-3 |
| 198 | 7.10 x 10-3 |
| 208 | 7.20 x 10-3 |
| 218 | 6.70 x 10-3 |
| 228 | 6.40 x 10-3 |
| 238 | 5.30 x 10-3 |
| 248 | 4.10 x 10-3 |
| 258 | 3.00 x 10-3 |
| 268 | 1.90 x 10-3 |
| 278 | 8.00 x 10-4 |
| 288 | 2.00 x 10-4 |

**Observations for Brewster's Angle Determination:**

Angle of polarizor for P-polarized light = 342°
Photodetector current corresponding to incident intensity of P-polarizated part ($I_o$) = 9.20 x $10^{-3}$ A

Angle of polarizor for S-polarized light = 252°
Photodetector current corresponding to incident intensity of S-polarizated part ($I_o$) = 5.1 x $10^{-3}$ A

**Readings for the measurement of angle**

| Angle of Incidence (degrees) | Photodetector current for P-polarization (I) (A) | Photodetector current for S-polarization (I) (A) |
|---|---|---|
| 20 | 4.00 x 10-4 | 3.00 x 10-4 |
| 25 | 4.00 x 10-4 | 3.00 x 10-4 |
| 30 | 3.00 x 10-4 | 3.00 x 10-4 |
| 35 | 2.00 x 10-4 | 4.00 x 10-4 |
| 40 | 1.00 x 10-4 | 5.00 x 10-4 |
| 45 | 5.30 x 10-5 | 6.00 x 10-4 |
| 50 | 1.92 x 10-5 | 7.00 x 10-4 |
| 51 | 1.45 x 10-5 | 8.00 x 10-4 |
| 52 | 1.01 x 10-5 | 8.00 x 10-4 |
| 53 | 5.70 x 10-6 | 9.00 x 10-4 |
| 54 | 3.10 x 10-6 | 9.00 x 10-4 |
| 55 | 1.20 x 10-6 | 9.00 x 10-4 |
| 56 | 7.00 x 10-7 | 1.00 x 10-3 |
| 57 | 1.90 x 10-6 | 1.10 x 10-3 |
| 58 | 5.30x 10-6 | 1.10 x 10-3 |
| 59 | 1.04 x 10-5 | 1.20 x 10-3 |
| 60 | 1.81 x 10-5 | 1.20 x 10-3 |
| 61 | 2.50 x 10-5 | 1.30 x 10-3 |
| 62 | 3.80 x 10-5 | 1.40 x 10-3 |
| 63 | 5.40 x 10-5 | 1.50 x 10-3 |
| 64 | 7.44 x 10-5 | 1.60 x 10-3 |
| 65 | 1.07 x 10-4 | 1.60 x 10-3 |
| 66 | 1.41 x 10-4 | 1.70 x 10-3 |
| 68 | 3.00 x 10-4 | 1.80 x 10-3 |
| 70 | 5.00 x 10-4 | 2.00 x 10-3 |

**Calculation**: …..

**Error Analysis**:

Please look at the file ‘Error analysis….’ and calculate the ‘Maximum possible error’.

**Reference:**

1. Principles of Optics: Electromagnetic Theory of Propagation, Interference and Diffraction of Light, Max Born and Emil Wolf (7th Edition), Cambridge University Press, 2005