

a)

$$0 \text{ cm} = ~~59~~ 72.8.2 \text{ } \mu\text{W/A}$$

$$5 \text{ cm} = 51.29 \text{ } \mu\text{W/A}$$

$$10 \text{ cm} = 16.35 \text{ } \mu\text{W/A}$$

$$15 \text{ cm} = ~~10.51 \text{ } \mu\text{W/A}~~ 8.89 \text{ } \mu\text{W/A}$$

Questão 01

b)

$$0^\circ = ~~604.5 \text{ } \mu\text{W/A}~~ [9.32 \text{ } \mu\text{W/A}] 10 \text{ cm}$$
$$10^\circ = 5.07 \text{ } \mu\text{W/A} 10 \text{ cm}$$
$$20^\circ = 4.11 \text{ } \mu\text{W/A} 10 \text{ cm}$$
$$30^\circ = 3.04 \text{ } \mu\text{W/A} 10 \text{ cm}$$
$$40^\circ = 2.20 \text{ } \mu\text{W/A} 10 \text{ cm}$$

c) Laser

a)

$$0 \text{ cm} = 642.0 \text{ } \mu\text{A}$$

$$5 \text{ cm} = 551.91 \text{ } \mu\text{A}$$

$$10 \text{ cm} = 547.18 \text{ } \mu\text{A}$$

$$15 \text{ cm} = 422.96 \text{ } \mu\text{A}$$

b) 10 cm

$$0^\circ = ~~581.13 \text{ } \mu\text{A}~~ 630.2 \text{ } \mu\text{A}$$

$$10^\circ = 1.08 \text{ } \mu\text{A}$$

$$20^\circ = ~~0.58~~ 0.46 \text{ } \mu\text{A}$$

$$30^\circ = 0.37 \text{ } \mu\text{A}$$

$$40^\circ = 0.38 \text{ } \mu\text{A}$$

## Questão 02

Com LDR

c) a) Laser

$$0 \text{ cm} = 11,170 \text{ mA} \quad 12,774 \text{ mA}$$

$$5 \text{ cm} = 12,519 \text{ mA}$$

$$10 \text{ cm} = 10,501 \text{ mA}$$

$$15 \text{ cm} = 11,897 \text{ mA}$$

b)

$\angle \approx 10 \text{ cm}$

$$0^\circ = 11,748 \text{ mA}$$

$$10^\circ = 0,423 \text{ mA}$$

$$20^\circ = 0,286 \text{ mA}$$

$$30^\circ = 0,308 \text{ mA}$$

$$40^\circ = 0,320 \text{ mA}$$

## diode LED

a)

$$0 \text{ cm} = 14,504 \text{ mA}$$

$$5 \text{ cm} = 3,420 \text{ mA}$$

$$10 \text{ cm} = 1,946 \text{ mA}$$

$$15 \text{ cm} = 0,533 \text{ mA}$$

b)

Com LDR

$\angle \approx 10 \text{ cm}$

$$0^\circ = 0,622 \text{ mA}$$

$$10^\circ = 0,541 \text{ mA}$$

$$20^\circ = 0,473 \text{ mA}$$

$$30^\circ = 0,378 \text{ mA}$$

$$40^\circ = 0,374 \text{ mA}$$

## Questão 03

3 mm LED IR

a)  $0 \text{ cm} = 3873,2 \text{ nA}$

$$5 \text{ cm} = 3687,2 \text{ nA}$$

$$10 \text{ cm} = 2069,4 \text{ nA}$$

$$15 \text{ cm} = 1043,9 \text{ nA}$$

b)  $0^\circ = 2067,9 \text{ nA}$

$$10^\circ = 1517,5 \text{ nA}$$

$$20^\circ = 1236,8 \text{ nA}$$

$$30^\circ = 937,5 \text{ nA}$$

$$40^\circ = 589,5 \text{ nA}$$

$\angle \approx 10 \text{ cm}$

5 mm LED IR

a)  $0 \text{ cm} = 3720,7 \text{ nA}$

$$5 \text{ cm} = 3453,9 \text{ nA}$$

$$10 \text{ cm} = 3045,6 \text{ nA}$$

$$15 \text{ cm} = 2561,8 \text{ nA}$$

b)  $0^\circ = 3354,9 \text{ nA}$

$$10^\circ = 3394,9 \text{ nA}$$

$$20^\circ = 3140,9 \text{ nA}$$

$$30^\circ = 1124,8 \text{ nA}$$

$$40^\circ = 401,85 \text{ nA}$$

$\angle \approx 10 \text{ cm}$