

$$I_{\text{max}} = 146.7 \text{ mA}$$

Z	Micrometer reading (mm)	Detector o/p current()	$R = D/2$ (mm)
1 mm	7.5	0	0.65 mm
	7.6	0.1	
	7.7	0.2	
	7.8	0.3	
	7.9	0.8	
	8.0	2.6	
	8.1	7.2	
	8.2	19.5	
	8.3	40.2	
	8.4	68.0	
	8.5	99.2	
	8.6	126.0	
	8.7	141.4	
	8.8	147.6	
	8.9	138.5	
	9.0	111.7	
	9.1	78.7	
	9.2	46.7	
	9.3	22.6	
	9.4	7.5	
	9.5	1.6	
	9.6	0.4	
	9.7	0.2	
	9.8	0	

~~Handwritten note:~~

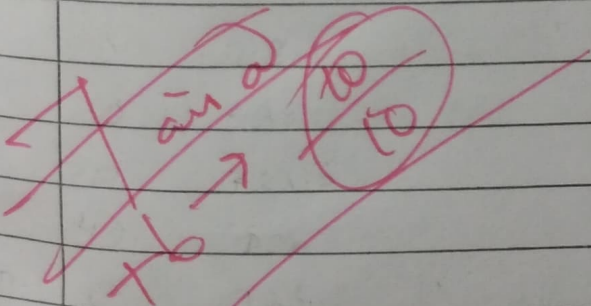
CALCULATION:

$$\theta_a = \tan^{-1}(R/2)$$

$$= \tan^{-1}(0.65)$$

$$\theta_a = 33.023$$

$$\begin{aligned}\text{Numerical Aperture, } NA &= \sin \theta_a \\ &= \sin(33.023) \\ NA &= 0.545\end{aligned}$$



RESULT:

Numerical Aperture (NA) of the given multimode optical fiber is 0.545

