e				Date
Ex	pt. No. 4	ptical	Fibre	Page No.
-	Apparatus! - · Diod	e Laser	Continued.	trafamoraini I I
	· Optic	ial fibe	8	low contract
	Laser	r-Fiber	coupler	
(1)	· Optice	el vail		Of prof
100	· Pinho	le photo	o detector	3-01
	· Powe	r supply	for Lase	r and Detector output
in the	mea	suremer	nt unit	6 01
	4,		8.01	6.01
.1	SLO:-	10 10	815	71
			₹ '83	3.11
	To determine num	erical	aperture	of a given multimode
9	optical fiber.	K.	F '861	5-11
	<u>. 1999</u>		15.00	
	Theory!-		8 150	4. 9
	V		186	1222
	A multi-mode optical	fiber	willonle	y propagate eight that
	enters the fiber u	rithin a	certair	cone, known as the
	acceptance cone of	the fib	er. The	half-angle of this cone is
	called the acceptant	ce angle	e, Oa.	ć!
	1	, , V		
	0a = tar	n-1 (R/Z	<u>-</u>)	
				1.
	where, D is the diam	eter of	far field	d intensity at 5% intensity
**************************************	level of the maximum	n atair	nable ir	itensity and Z is the
	distance between the	detec	tor and	the fiber output end.
	NA	= sin 0	a	
			· · · · · · · · · · · · · · · · · · ·	
			Teac	cher's Signature :

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talceilaten !-61.5 - 19 8a Januari R Mody Fiber repactive index of given a juid cource) is found to be

Z	Micrometer Reading (mm)	Detector Current		territo.	et restaurage
	10	0.1	Vin	To South	
(ANIM)	10-2	0.2	g havin	storing .	
	100 10-4135 love	com 0.65	-/19	ne count	
	10.6	25	75/31	THE WA	
	10.8	10.8		and the second s	the state of the s
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	11.6	108.4	,	2009=18	colf leito
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	12	68.8			- heads
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21 3(ro)	21dt 012-8pm - 16	0.3	dif	od to on	
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Sa = 100 (R/2)

Date	4	_	_	_	_	_	_	_	_	_	-	_

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Page No.

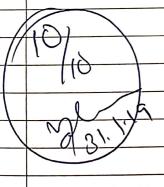
Calculation: -

$$\frac{1}{2} \cdot R = \frac{D}{2} = 0.9 \text{mm}$$

$$\theta_a = \tan^{-1}\left(\frac{R}{z}\right) = \tan^{-1}\left(0.9\right) = 41.987$$

Result:

The acceptance angle of cone of optical fiber is 0.668.



Teacher's Signature : _____