Date: **Reg. No.**

OPTICAL FIBER CHARACTERIZATION

Apparatus available:

Diode laser,

Optical fiber,

Laser – Fiber coupler,

Optical rail,

Pinhole photo detector,

Power supply for laser and Detector output measurement unit.

SLO:

To determine numerical aperture of a given multimode optical fiber.

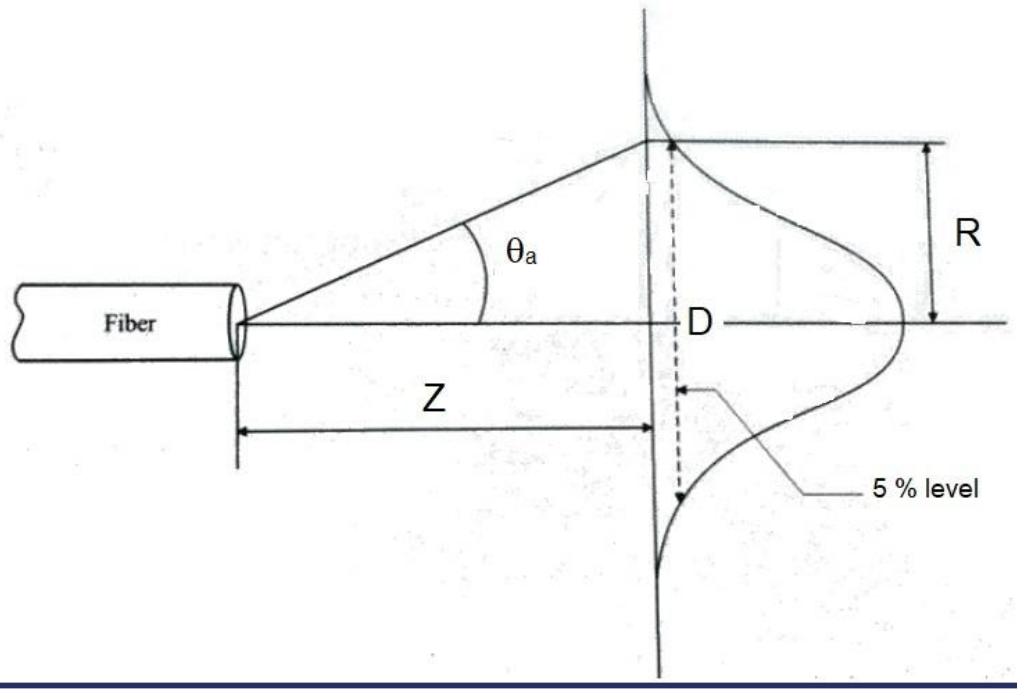
Theory:

A multi-mode optical fiber will only propagate light that enters the fiber within a certain cone, known as the acceptance cone of the fiber. The half-angle of this cone is called the acceptance angle, θ_a.

Acceptance angle $\theta_a = \tan^{-1}(R/Z)$

where, D is the diameter of far field intensity at 5% intensity level of the maximum attainable intensity and Z is the distance between the detector and the fiber output end.

$$NA = \text{Sin}\ \theta_a$$



Date: **Reg. No.**

Z	Micrometer reading (mm)	Detector o/p current	D
1 mm			

Calculation :

Result :-

Numerical Aperture (NA) of the given multimode optical fiber _____ (Units)