



Shree H.N. Shukla group of colleges

PHYSICS

T.Y.B.Sc. (Sem. VI) (CBCS)

QUESTION BANK

PAPER- 603

Ch 5 – FIBRE OPTICS

SECTION-A

Q.1: One marks questions:

- 1) Optical Fibre is based on the principle of _____.
- 2) The relative difference in the refractive indices of core & cladding is known as the _____.
- 3) ____ is the measure how much light can be collected by an optical system.
- 4) Write the formula of fractional refractive index _____.
- 5) Write the formula of acceptance angle.
- 6) What is order of fractional refractive index change?
- 7) What is ranging of numerical aperture?
- 8) What is single mode fibre?
- 9) Which are the main parts of communication system?
- 10) Gives equation of snell's law?

SECTION – B

Q.2: Short Questions:

[2 or 3 Marks each]

1. Calculate the numerical aperture and acceptance angle of an optical fibre from the data n_1 (core) = 1.55 , n_2 (Cladding) = 1.50 .
2. Calculate the fractional refractive index for a given optical fibre , if the refractive indices of the core and cladding 1.563 and 1.498 respectively.
3. What is the difference between single mode and multimode fibre?
4. Explain: total internal reflection.
5. Describe the critical angle of propagation for an optical fibre.
6. Medical application of fibre optics.
7. Explain difference between the step index and graded index fibre.

8. Give the advantage of fibre optics.
9. The NA of an optical fibre is 0.5 and core refractive index is 1.54 , find the refractive index of the cladding.
10. Explain the difference between step index and graded index fibre.

Q.3 Write Detail Note on : [5 Marks each]

1. Explain acceptance angle with their equation.
2. Discuss the application of an optical fibre.
3. Explain: losses in optical Fibre.
4. Explain types of fibre.
5. Draw the block diagram of fibre optics communication system and discuss the function of its component.

ALL THE BEST..