



Shree H.N. Shukla group of colleges

PHYSICS

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

Unit Test examination

PAPER- 603

Date:

[Total Marks: 22]

Instructions: All questions are compulsory.

The right side figure indicates total marks of the question.

Draw the figure wherever necessary.

Write answers of all the questions in main answer sheets.

SECTION-A

Q.1: One marks questions:

[5]

- 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.

SECTION – B

Q.2 (A): Short Questions: Write any three : [2 Marks each]

[6]

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?

Q.2 (B) : Short questions: Write any two: [3 Marks each]

[6]

1. The NA of an optical fibre is 0.5 and core refractive index is 1.54 , find the refractive index of the cladding.
2. Explain the difference between step index and graded index fibre.

Q.2 (C): Write Detail Note on [Any one]: [5 Marks each]

[5]

1. Explain acceptance angle with their equation.
2. Discuss the application of an optical fibre.