

DHAKA COLLEGE

PHYSICS DEPT.

Hon's 3rd Year

Incoours - 2020

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Sub : Laser ~~and~~ and photonics

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Ans to the Q.N

- (4) Ruby laser : A ruby laser is a solid-state laser that uses a synthetic ruby crystal as its gain medium.
- (9) Light amplification by stimulated emission of radiation.
- (5) Energy levels are fixed distances from the nucleus of an atom where electrons may be found. These electron shells are known as electron energy level.
- (11) Fraunhofer diffraction: Is the type of diffraction that occurs in the limit of small Fresnel number. In fraunhofer

diffraction, the diffraction pattern is independent of the distance to the screen, depending only on the angles to the screen from the aperture.

(7) The three main wavelengths used for fiber optic transmission are 850, 1300 & 1550 nm. These wavelengths are used in fiber optics because they have the lowest attenuation of the fiber.

(12) Optical fiber bundles are either coherent or incoherent. In a coherent bundle, the fibers are arranged so that images, as well as illumination, can be transmitted.

(8) Three types of optics fibre .

commonly used i) Single mode .

ii) Multi mode .

iii) Plastic optical fiber .

(3) In fiber-optic communications, wavelength-division multiplexing (WDM) is a technology which multiplexes a number of optical carrier signals on to a single optical fiber by using different wavelengths of laser light.

(6) Wave guide: A waveguide is a structure that guides waves, such as electromagnetic waves or sound, with minimal loss of energy by restricting the transmission of energy to one direction.

(10) The condition of transmitting light through a optical fiber is, the light should be maintain the total internal reflection.