Assignment - 2

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① What is LASER and their charecteristics?

Ⓐ "LASER" – "Light Amplification by Stimulated Emission of radiation".

Charecteristics of Laser:-

There are four charecteristics

(i) High monochromaticity

(ii) High Directionality

(iii) High ~~den~~ intensity (or) Brightness

(iv) High degree of coherence

② what is pumping? Mention different its methods?

Ⓐ pumping: It is the process of providing suitable form of an energy to achieve population Inversion.

(1) optical pumping method

(2) Electron excitation method

(3) Direct conversion

(4) chemical pumping

~~③~~ ④ Define acceptance angle Numerical aperture.

Ⓐ Acceptance Angle:- "Acceptance angle is defined as the maximum angle of incidence at the interface of air medium and core medium for which the light ray

enters into the core and travels along the interface of core and cladding".

Numerical Aperture:- "Numerical Aperture of a fiber is defined as the light gathering capacity of an optical fiber and is proportional to acceptance angle". Numerical aperture is equal to sine of acceptance angle.

(5.) Define Magnetic flux density.

Magnetic flux density:- It is defined as the ratio of magnetic flux through the unit area of cross section.

→ $B = \frac{\phi}{A}$ where, ϕ = Magnetic flux
A → area of cross section
B → Magnetic flux density

(3.) what are Step index and Graded index fiber?

(A.) Step index: In step index refractive index varies suddenly
→ These are again classifies as single and multimodes.
→ It follows Total Internal reflection and rays enters randomly.

Graded Index fiber;
→ In this refractive index varies gradually.
→ It has no any classifications.
→ In this it follows helical(or) Spiral path.