St.JOSEPH'S COLLEGE OF ENGINEERING, CHENNAI – 119.
St.JOSEPH'S INSTITUTE OF TECHNOLOGY, CHENNAI -119.
ENGINEERING PHYSICS - I (PH6151) -Assignment Questions (2 marks)

1. Write the differences between spontaneous emission & stimulated emission.

2. Write the condition for total internal reflection.

3. Define acceptance angle and Numerical Aperture of fibre

4. Write any two differences between step-index and graded index fibre

5. What is fractional index change? What is the relation between fractional index change and numerical aperture?

6. Mention the advantages of optical fibre communication over radio wave communication.

7. Define dispersion

8. A signal of 100mW is injected into a fibre. The out coming signal from the other end is 40mW. Find the loss in dB

9. Calculate the numerical aperture and acceptance angle of an optical fibre having refractive index of core 1.6 and refractive index of cladding 1.3.

10. If the wavelength of laser light is $6328A^o$ and its output power is 3.147mW. How many photons are emitted at each minute when it is in operation?

11. Calculate the relative population of Sodium atoms in Sodium lamp in first excited state and ground state at a temperature of 250^oC

12. Distinguish between single mode and multimode fibre

13. For a free particle moving within a one dimensional potential box, the ground state energy state cannot be zero. Why?

14. Write any two applications of Schroedinger's wave equation.

15. Define Eigen value and Eigen function.

16. What are the types of electron microscope?

17. Write the differences between optical microscope and electron microscope.

18. Calculate the de Broglie wavelength associated with a proton moving with a velocity of $1/10^{th}$ of velocity of light.(mass of proton = 1.67×10^{-27} Kg)

19. Define resolving power of microscope.

20. Define normalization process.

21.What is the importance of Planck's radiation law?

22.State De-Broglie's hypothesis

23.What are matter waves?

1. Propagation of Light in an optical fibre

2. Types of Optical Fibre

3. Losses in optical fibre

4. Sensors and Endoscopy

5. Einstein's Theory

6. Nd- YAG laser

7. CO_2 Laser

8.Homojunction and Heterojunction laser

9. Planck's radiation law

10. Compton effect

11. Time independent Schroedinger wave equation

12. Time dependent Schroedinger wave equation & Physical significance of wave function

13. Particle in One – Dimensional box.

14. SEM and TEM

15. G.P. Thomson experiment and matter waves