

Tutorial 2, Optics: Basics

1. Define following: (a) Optics, (b) Light, (c) Wave ($3 \times 1 = 3$ marks)
2. Explain the contribution of following Scientists in development of optics. ($6 \times 2 = 12$ marks)
 - a. Christiaan Huygens
 - b. Isaac Newton
 - c. Thomas Young
 - d. James Clerk Maxwell
 - e. Albert Einstein
 - f. Louis de Broglie
3. Explain corpuscular model of light. (3 marks)
4. Explain Snell's law. (3 marks)
5. Explain wave model of light. (3 marks)
6. Explain wavelength, amplitude, frequency, and time-period of transverse wave. (3 marks)
7. Explain principle of superposition. (3 marks)
8. Describe the properties of Maxwell's Electromagnetic waves. Explain how Maxwell predicted the existence of electromagnetic waves and the speed of electromagnetic waves. (6 marks)

Reference:

Optics by Ajoy Ghatak, 6E
Chapter 1, History of Optics
Chapter 2, What is light, A Brief history
2.1 Introduction
2.2 The corpuscular Model of light
2.3 The wave model
2.4 Maxwell's Electromagnetic Waves