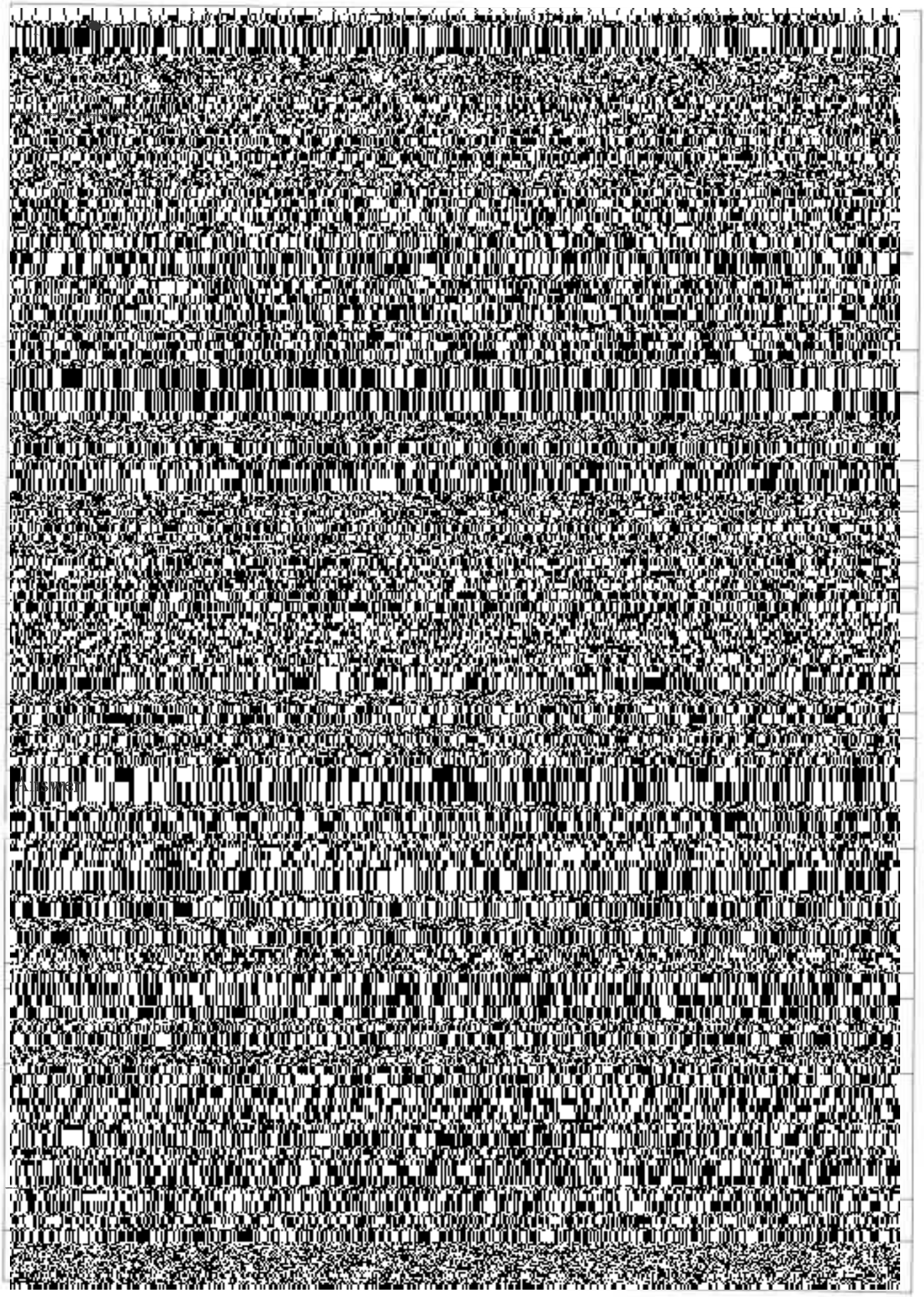

15.	(a) What are the important characteristics of laser radiation. [5M] (b) Explain the principle & working of semiconductor laser. [5M]	L1 L2	CO2 CO2
	OR		
16.	(a) Explain different vibrational modes of CO_2 laser. [5M] (b) Explain the construction & working of CO_2 laser. [5M]	L2 L2	CO2 CO2
17.	(a) Define acceptance angle and derive an equation for acceptance angle. [5M] (b) The N.A of an optical fibre is 0.39. If the difference in the refractive indices of the material of its core and cladding is 0.05, calculate the refractive index of material of the core. [5M]	L1 L3	CO3 CO3
	OR		
18.	(a) Explain the optical fibres in communication system with neat diagram? [5M] (b) Write a short note on various losses in optical fibres. [5M]	L2 L1	CO3 CO3
19.	(a) Explain the Max Planck's black body radiation energy distribution. [5M] (b) Derive Wein's law from Planck's law. [5M]	L2 L3	CO4 CO4
	OR		
20.	What is de Broglie's hypothesis? Derive an equation of de Broglie wave length of an electron? [10M]	L1	CO4