



	b. Derive an expression for acceptor concentration in p-type semiconductor. [5M]		3
	OR		
7	a. What is PN junction diode? Describe the forward and the reverse biasing of the p-n junction diode. [5M] b. What is Hall effect? Derive an expression for Hall coefficient and mention the importance of Hall effect. [5M]	3	2 3
8	a. Distinguish between direct and indirect band gap semiconductors. [5M] b. What is a solar cell? Explain its construction and working. [5M]	4	2 2
	OR		
9	a. Distinguish Photoluminescence and Electroluminescence. [5M] b. Explain the construction and working of liquid crystal display devices. [5M]	4	2 2
10	a. Distinguish between step-index and graded-index fiber. [5M] b. Derive an expression for numerical aperture of an optical fiber. [5M]	5	2 3
	OR		
11	a. Discuss the representation of quantum mechanical state using Dirac notation. [5M] b. Write a short notes on CNOT multiple Qubit gate. [5M]	5	2 2