



6	a) Write a short note on intrinsic and extrinsic semiconductors. [5M] b) With a neat sketch explain the formation of a PN-junction. [5M]	CO3	L1 L1
OR			
7	a) Derive an expression for the density of electrons in conduction band of an intrinsic semiconductor. [5M] b) Define and explain the Hall Effect with its applications. [5M]	CO3	L3 L1
8	a) Differentiate the direct and indirect band gap semiconductors. [5M] b) Explain clearly the phenomenon of Ferro-electricity. [5M]	CO4	L2 L2
OR			
9	a) With a neat diagram discuss the construction and working of an Avalanche photo diode (APD). [5M] b) Define the Photoluminescence and discuss the LCD. [5M]	CO4	L2 L2
10	a) Explain the signal transmission in step index and graded index fibers. [5M] b) Discuss the Bloch sphere representation with a neat diagram. [5M]	CO5	L2 L2
OR			
11	a) With a neat sketch discuss the block diagram of optical fiber communication system. [5M] b) Explain the CNOT Qubit gate with truth table. [5M]	CO5	L2 L2