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Department of Basic Sciences – Physics

Sl. No	**Question Bank** **Module-1** **Lasers and optical fibers**	COs	RBT Levels	Marks
1	What is Laser? Mention important characteristics of Lasers.	CO1	L1	4m
2	Discuss the possible ways through which radiation and matter interaction can take place.	CO1	L2	7m
3	Derive the expression for energy density in terms of Einstein's coefficients.	CO1	L3	8m
4	Explain the Requisites and conditions of a Laser system.	CO1	L2	7m
5	Explain the construction and working of a semiconductor laser.	CO1	L2	8m
6	Explain the working of Bar code scanner.	CO1	L2	5m
7	Explain the working of laser printer and laser cooling.	CO1	L2	4m
8	With neat diagram derive an expression for numerical aperture and arrive at the condition for propagation of a signal in an optical fiber. OR Prove that NA $=\sqrt{{n_1}^2 - {n_2}^2}$	CO1	L3	8m
9	What is refractive index profile? With neat diagrams, explain different types of optical fibers.	CO1	L2	8m
10	What is attenuation? Discuss the various loss factors in optical fiber communication.	CO1	L2	8 m
11	With the help of block diagram, explain point to point communication using optical fiber.	CO1	L2	5m

12	Define attenuation and mention the expression attenuation co efficient.	CO1	L2	5m
13	Define optical fiber , refractive index profile and Numerical aperture and acceptance angle?	CO1	L2	5 m
14	Explain fiber optic networking	CO1	L2	5m