PRN:		Course Code :	ECE407R1

Final Year **B. Tech** End Semester Examination Winter 2023

Optical Fiber Communication

Day and Date: Tuesday, 05/12/2023 Max Marks: **100**

Time : 2.00 to 5.00 PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Elaborate motivation behind light wave communication.	08	4	1
	b)	Explain Refractive Index, Reflection, Refraction, Total internal reflection with suitable diagrams.	08	2	1
		OR			
	b)	Describe on Basic information rates.	08	2	1
Q.2		**Attempt the following**			
	a)	Illustrate optical fiber configurations with suitable diagram	08	3	1
	b)	With suitable diagrams Elaborate Modified Chemical Vapor deposition process and Plasma activated chemical vapor phase deposition process.	08	4	2
		OR			
	b)	Elaborate in detail with block diagram direct melt double crucible method of fiber fabrication	08	4	2
Q.3		**Attempt any two from the following**			
	a)	What is mean by Dispersion? Explain different types of chromatic dispersion.	08	2	2
	b)	Comment on Scattering Losses.	08	4	2
	c)	With suitable diagrams explain various types of bending losses in the fiber.	08	3	3
Q.4		**Attempt any two from the following**			
	a)	Illustrate semiconductor injection laser with suitable diagrams (Fabry-Perot resonator cavity laser).	08	3	3
	b)	Draw and explain radiation pattern in axial and vertical planes from surface emitting LED and edge emitting LED	08	3	3
	c)	Discuss various LASER diode structures and its radiation patterns along with its diagrams	08	4	3
Q.5		**Attempt any Two of the following**			
	a)	Draw digital optical receiver and explain performance parameters.	09	3	3
	b)	Draw and explain internal structure of InGaAS avalanche photodiode.	09	3	4
	c)	Compare various photo detectors.	09	4	4
Q.6		**Attempt any Two of the following**			
	a)	Elaborate various tunable filter types.	09	4	4
	b)	Explain in detail performance of different network topologies.	09	5	4
	c)	Explain EDFA in detail.	09	2	4

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