Sub Code: BECT702/BECT701 **ROLL NO……..……..**

ODD SEMESTER EXAMINATION, 2024 – 25

4th Year (7th Sem) B.Tech.: Electronics & Communication Engineering

Optical Fibre Communication

Duration: 3:00 hrs **Max Marks: 100**

Note: - Attempt all questions. All Questions carry equal marks. In case of any ambiguity or missing data, the same may be assumed and state the assumption made in the answer.

Q 1.	**Answer any two parts of the following.**	**(10x2= 20)**
	a) (i) Define Signal Degradation in Optical Waveguides?	(5 marks)
	(ii) Define mode theory for circular guide modal equation?	(5 marks)
	b) Explain Optical fiber Communication System with structure? Define modes in optical fiber?	(10 marks)
	c) Define the term derivation of material dispersion and waveguide? Define linearly polarized modes?	(10 marks)
Q 2.	**Answer any two parts of the following.**	**(10x2= 20)**
	a) (i) Define characteristics of single mode fiber?	(5 marks)
	(ii) Define inter symbol interference and bandwidth?	(5 marks)
	b) Explain Attenuation in Optical Fiber System? Define waveguide dispersion?	(10 marks)
	c) Define scattering losses in Optical Fiber System? Explain intermodal dispersion?	(10 marks)
Q 3.	**Answer any two parts of the following.**	**(10x2= 20)**
	a) (i) Define quantum efficiency of LED?	(5 marks)
	(ii) Write short note on comparisons of photo detectors?	(5 marks)
	b) Write short note on Optical Sources? Explain LASER diodes & its radiation patterns?	(10 marks)
	c) Define Optical Detectors? Explain Avalanche photo diodes & Signal to Noise Ratio (SNR)?	(10 marks)
Q 4.	**Answer any two parts of the following.**	**(10x2= 20)**
	a) (i) Define Receiver Sensitivity of Optical Receiver?	(5 marks)
	(ii) Define Optical Receiver Design?	(5 marks)
	b) Define the term analysis & performance of Optical Receiver? Define Photodiode for optical receiver?	(10 marks)
	c) Define the Recent Receiver Circuit of Optical Receiver? Describe System configuration of Optical Receiver?	(10 marks)
Q 5.	**Answer any two parts of the following.**	**(10x2= 20)**
	a) (i) Write short note on WDM?	(5 marks)
	(ii) Define Passive DWDM Components?	(5 marks)
	b) Define the elements of optical networks? Write short note on Optical ETHERNET?	(10 marks)
	c) Define SONET? Define OADM configuration?	(10 marks)

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