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## M.Tech. (ECE) (2018 Batch) (Sem.-1) **OPTICAL COMMUNICATION SYSTEM** Subject Code : MTEC-PE2Y-18-5 M.Code: 75181

## Time: 3 Hrs.

Max. Marks: 60

## **INSTRUCTIONS TO CANDIDATES :**

- 1. Attempt any FIVE questions out of EIGHT questions.
- 2. Each question carries TWELVE marks.

Q1	a) Explain acceptance angle, critical angle and attenuation in optical fibre.	6
	b) List all the basic components of a fiber optic cable and explain their functions.	6
Q2	a) Differentiate between step-index and graded index fiber. Explain mode field diam (MFD) of a single mode fiber.	eter 6
	b) Explain the outside vapour phase oxidation fiber fabrication method.	6
Q3	a) Distinguish between spontaneous and stimulated emission. Why indirect band material is used for manufacturing LED's?	gap 6
	b) Draw the energy band diagram of LED diode.	6
Q4	a) What are the different types of noises present in the photodetector? Also, derive expression for signal-to-noise ratio at the output of an optical receiver.	the 8
	b) Explain the power-current characteristic of LED.	4
Q5	a) Explain fusion and mechanical splicing techniques used in optical fiber splicing.	6
	b) What is WDM and list the reasons for its development as a major communica	tion

technology? 6



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	a) Scattering	2
	b) Numerical aperture measurement	4
	c) Semiconductor and Erbium doped fiber amplifiers	6
Q7	a) Explain optical OFDM. Why OFDM is needed to be in conjunction with a communication?	optical 6
	b) Explain the classification of a photo-detector based on intrinsic and extrinsic proce	ss. 6
Q8	a) Explain the problems associated with the optical OFDM.	6
	b) Explain peak-to-average power ratio and the methods to minimize it.	6



NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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