

Roll No.

22666

**M. Tech 2nd Semester (ECE) CBCS
Scheme Examination – May, 2018**

OPTICAL COMMUNICATION

Paper : MTECE22C2

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory*. Attempt any *five* questions by selecting at least *one* question from each Section.

1. (a) Explain total Internal Reflection in brief. 4
- (b) Write note on single mode and multimode fiber. 4
- (c) Explain working of fabry-perot laser. 4
- (d) Explain optical power budgeting. 4
- (e) Write note on noise in Coherent Receiver. 4

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SECTION – I

2. (a) Explain block diagram of optical fiber communication. 10
- (b) Explain dispersion shifted and dispersion flattened fibers. 10
3. (a) Explain Ray theory for optical propagation and why it is necessary to meet the total internal reflection requirement in an optical fiber? 10
- (b) Explain Linear and Non-Linear scattering losses. 10

SECTION– II

4. Write note on surface emitter LED and burrus type heterostructure. 20
5. Explain working of avalanche photodiode and its characteristics. 20

SECTION – III

6. (a) Explain different types of preamplifiers used in optical communication receivers. 10
- (b) Explain the three basic performance criteria of wavelength division multiplexing. 10
7. (a) Explain LASER drive circuits in detail. 10
- (b) Explain optical TDM sub-carrier multiplexing in detail. 10

SECTION – IV

8. Explain following :
 - (a) Homodyne detection 10
 - (b) Hetrodyne dection 10
9. (a) What is self synchronous demodulation ? 10
- (b) Explain phase diversity receiver for coherent optical fiber communication system. 10