

**Total No. of Pages : 02**

**Total No. of Questions : 09**

**B.Tech.(ECE) (2011 Batch)/(ETE) (2011 Onwards) (Sem.-7,8)**

# OPTICAL COMMUNICATION

**Subject Code : BTEC-702**

**M.Code : 71911**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

## SECTION-A

- 1. Write briefly :**
- a) Modulation formats
  - b) Fiber modes
  - c) Non-radiative combination
  - d) Sensitivity degradation
  - e) Fiber bandwidth
  - f) Reflection feedback noise
  - g) SCM
  - h) Source fiber coupling
  - i) Optical fiber as a communication channel
  - j) Limitations on BER

### SECTION-B

2. Write a note on design issues during fiber manufacturing.
3. A multimode graded index fiber exhibits total pulse broadening of  $0.1 \mu\text{s}$  over a distance of 15km. Estimate the maximum possible bandwidth on the link assuming no intersymbol interference, pulse dispersion per unit length.
4. Differentiate between p-i-n and avalanche photodiodes.
5. Define power budget. Describe the various sources of power penalty.
6. Write a note on WDM lightwave systems.

### SECTION-C

7. Describe attenuation and its types in detail.
8. Differentiate between LED and Lasers. Explain different types of lasers in detail.
9. Explain optical receiver design by considering various issues and components used in it.

**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.**