

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016**

**Subject Code: 161005****Date: 24/10/2016****Subject Name: Optical Communication****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain advantage of fiber optic over convectional copper wire. **07**  
 (b) Draw and explain basic optical communication system block diagram. **07**
- Q.2** (a) Compare multimode step index fiber and Multimode graded index fiber. **07**  
 (b) Explain basic three mechanisms (Absorption, Spontaneous emission, Stimulated emission) for lasing action with diagram. **07**
- OR**
- (b) Derive the equation of Numerical Aperture (NA) for step index fiber. **07**
- Q.3** (a) Compare Laser and LED. **07**  
 (b) Define (1) carrier confinement (2)optical confinement (3) normalized frequency (4) Radiance **07**
- OR**
- Q.3** (a) Explain edge emitter LED with neat sketch. **07**  
 (b) Explain Fabry prot laser cavity with necessary sketch. **07**
- Q.4** (a) What is dispersion? Compare Intramodal dispersion and Internal Modal dispersion. **07**  
 (b) Compare PIN and APD photo detector in detail. **07**
- OR**
- Q.4** (a) What is RAPD? Explain its advantage over APD with diagram. **07**  
 (b) Explain Inter Symbol Interference with neat diagram. **07**
- Q.5** (a) Write a S.N. on SONET/SDH. **07**  
 (b) Write S.N. on WDM **07**
- OR**
- Q.5** (a) Explain Optical coupler with neat sketch. **07**  
 (b) Explain any one attenuation measurement technique for optical fiber. **07**

\*\*\*\*\*