

M. Tech. Electronics & Communication Engineering (CBCS Pattern) Semester-II
PECS22 - Advanced Optical Communication

P. Pages : 1

Time : Three Hours



GUG/S/25/11031

Max. Marks : 70

- Notes :
1. Attempt **any five**.
 2. All questions carry equal marks.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Draw and explain general optical fiber communication system. What are its advantage? Explain the difference between passive and active fiber optical couplers. 7
b) Explain the difference between passive and active fiber optical couplers. 7
2. a) Explain time domain measurement and frequency domain measurement for fiber dispersion measurements. 7
b) Explain the operation of optical time domain Reflectometry (OTDR). 7
3. a) A ruby laser contains a crystal of length 4 cm with RI of 1.78 the peak emission wavelength from device is 0.55 μm . Determine the number of longitudinal mode and their frequency separation. 7
b) Differentiate between WDM and DWDM. 7
4. a) Explain the concept of Dense WDM and also the key system features of Dense WDM with the help of suitable block diagram. 7
b) Explain the following terms:-Acceptance angle and Numerical aperture. 7
5. a) Explain the operation of optical time domain Reflectometry(OTDR). 7
b) Explain GPON applications of optical amplifier. 7
6. a) Explain the different types of linear and nonlinear scattering losses. 7
b) Explain the principle of working of EDFA. 7
7. a) Compare WDM and DWDM. 7
b) Explain the difference between passive and active fiber optical couplers. 7
8. Write short notes on any two. 14
 - a) Photodetector
 - b) LED
 - c) Angular dispersive device
 - d) Optical Isolator.
