



Reg. No. :

Name :

First Semester M.Tech. Degree Examination, March 2014
(2013 Scheme)
Electronics and Communication
Stream : Telecommunication Engineering
TTC 1005 : ADVANCED OPTICAL COMMUNICATION

Time : 3 Hours

Max. Marks : 60

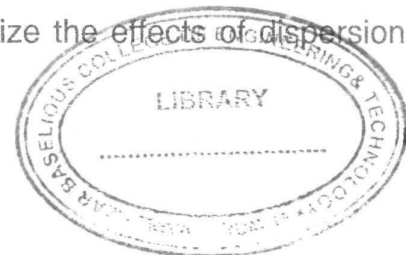
Instruction : Answer *any two* questions from *each* Module.

MODULE – I

1. Draw the block schematic of a forward pumped EDFA and explain. Explain why there exists an optimal length for which gain is maximum.
2. Facet reflectivities of a fiber perot amplifier are 30%. The device has a single pass gain of 5.4 dB with a peak wave length at 1550 nm, and a spectral band width of 260 GHz. If active region refractive index is 4.2, estimate the mode spacing and cavity length.
3. Explain the principle of operation of fiber Raman amplifier. Sketch the gain-wavelength plot for a FRA, pumped at $1\ \mu\text{m}$ when fiber is made of pure silica.

MODULE – II

4. What are the components used in WDM light wave systems ? Explain the working of each component in detail.
5. Discuss the influence of optical non-linear effects in the performance of DWDM systems.
6. Explain about compensation schemes to minimize the effects of dispersion. Suggest various methods to minimise ISI.



P.T.O.



MODULE – III

7. Distinguish between loss managed and dispersion managed soliton systems. Discuss in detail.
 8. Calculate the peak power of soliton pulses in a 10 Gbps loss-managed system.
Given
Dispersion parameter $\beta =$
Non linearity coefficient $\gamma =$
Also mention how soliton interaction is avoided.
 9. What are the causes of bit error in soliton based systems ? Explain about exist of a optimum BER as the bitrate of system is varied.
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