



Reg. No. :

Name :

**First Semester M.Tech. Degree Examination, February 2015
(2013 Scheme)
Electronics and Communication
Stream : Telecommunication Engineering
TTC 1005 : ADVANCED OPTICAL COMMUNICATION**

Time : 3 Hours

Max. Marks : 60

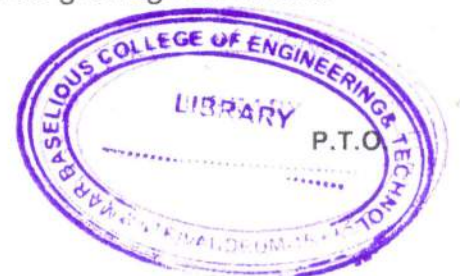
Instruction : Answer **any two** questions from **each** Module.

MODULE – I

1. Explain the working of a Erbium Doped Fiber Amplifier (EDFA). Explain how gain varies with EDF length. (5+5)
2. What is a mode locked laser ? A mode lock laser has 12,000 participating modes and a cavity length of 400 Γ m. Estimate the pulse width and pulse repetition rate. (5+5)
3. Explain the working principle of a Fiber Raman Amplifier (FRA) plot the gain variation with respect to Raman shift when FRA is made of pure Silica and pumped at 1 Γ m .

MODULE – II

4. What are the various methods employed for detecting WDM signals ? Compare them. Also discuss challenges faced in DWDM systems.
5. What are the application of optical add drop multiplexers ? Design a add drop multiplexer to add or drop 1530 nm to WDM fiber. Use fiber bragg gratings.
6. What is FSR ? Write an expression for FSR for a waveguide grating router and explain.





MODULE – III

7. What is Soliton interaction ? Explain how it can be avoided. Also discuss how it depends on relative phase and amplitude ratio of a Soliton Pair.
 8. Show that the timing jitter is reduced in DM solitons when compared to standard solitons.
 9. Explain how energy fluctuation affect the signal to noise ratio in Dispersion Managed (DM) solitons.
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