Subject: OPTICAL COMMUNICATION AND NETWORKS   Sub Code :
Faculty name: Mr.Jayanth.C

Module questions: 4

Q.No	Question Description	Marks

Module-4:

1. Explain the operational principle and implementation of WDM and mention WDM Standards.
2. Discuss the layout of a basic 2 x2 Mach-Zehnder Interferometer and its equations.
3. Explain the optical isolators, optical circulators and operation of a Polarization of independent Isolator made of 3 miniature optical components.
4. Describe briefly Phased array based devices with its diagram of top view of a typical arrayed waveguides grating and its functions.
5. Explain the operation of Optical ADD/DROP multiplexers and Dielectric thin filters with suitable diagrams.
6. Discuss Fiber Grating filters and basic parameters in a Reflection Grating.
7. Describe dielectric thin film filters with an example.
8. I) Write short notes on MEMS technology (05 M)
   ii) Three methods for adjusting the wavelength of a tunable Bragg grating. (05 M)
9. Discuss Dynamic Gain equalizers with an example of Dynamic gain equalizers.

Module questions: 5

Q.No	Question Description	Marks

1. Explain the general applications of the three following three classes of optical amplifiers.
2. Explain the amplification mechanism of EDFA amplifier with the help of energy level diagram and various transition process diagrams.
3. Discuss the basic operation of a generic optical amplifier and discuss semiconductor optical amplifiers.
4. Explain the physical layer aspects of SONET/SDH, explaining the basic structure of STS-1 SONET frame format, STS-N SONET frame format with transmission formats.
5. Write short notes on the following.
   i)   SONET/SDH Rings: **Ring types architecture**: Both unidirectional and bidirectional line switching ring architectures
6. Write short notes on   I) Generic configuration of a large SONET/SDH networks
                            II) Reconfigurable optical add/drop multiplexers (OADM).
7. Summarize with equations semiconductor optical amplifiers with its amplification mechanism.

8. Discuss basic optical fiber network topologies a) Bus   b) Ring   c) Star d) Mesh with figures.

9. Discuss simple Passive optical add/drop architectures and Reconfigurable OADM with figures.