

(3 Hours)

[Total Marks : 80]

- N.B. : (1) Question no.1 is compulsory.  
 (2) Attempt any three questions from remaining questions.  
 (3) Figures to the right indicate full marks.

1. Attempt any four of the following :- 20
- Compare intermodal and intramodal dispersion.
  - Explain the basic working principle of Lasers.
  - Differentiate between the optical components isolator and circulator.
  - Explain the concept of Bragg Grating.
  - Define crosstalk. What are the types of crosstalk in optical transmission system?
2. a) Derive the expression for pulse spreading in intermodal dispersion. 10  
 b) Draw architecture of SONET/SDH and explain in brief. 10
3. a) Explain Material attenuation in optical fiber communication. 6  
 b) What do you mean by bit interleaving and packet interleaving? 7  
 c) Derive the expression of Power Penalty with impairment and without impairment. 7
4. a) Explain SPM and how it is mitigated by GVD. 8  
 b) Explain four waves mixing. 8  
 c) Comment on need of Wavelength stabilization. 4
5. a) Explain important network management functions to the operation of the Network. 8  
 b) What is micro bending loss? Explain how to minimize the these losses with neat sketch. 8  
 c) How DWDM is different from WDM? 4
6. Write a short notes on :- 20
- Link Budget
  - Dispersion and OTDR
  - Optical Access Network
  - WDM network element and architecture