

ExTc -VII

OCN

Q. P. Code: 36055

(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

(4) Assume suitable data if necessary and mention the same in answer sheet.

Q.1 Attempt any 5 questions

a) Explain three operating windows in optical communication

b) Compare between intermodal and intramodal dispersion.

c) Differentiate LED and LASER sources

d) Explain the working principle of optical circulator

e) What is Optical amplifier?

f) Define Cross talk and Solitons.

Q.2 a) A silica optical fiber has core refractive index of 1.4 and the cladding index of refraction is 1.35. Determine [10]

i) The critical angle

ii) Numerical aperture

iii) The acceptance angle

b) Explain the signal attenuation in optical fiber and plot the three windows [10]

Q.3 a) Explain sources of loss at fiber joint [10]

b) Explain in any one fiber fabrication process with neat diagram. Compare the [10]

different methods of fabrication [10]

Q.4 a) Derive an expression for Link Power Budget analysis of optical fiber. [10]

b) Explain principle of working of APD photo detector.

c) Define Self phase modulation [5]

Q.5 a) Explain SONET architecture in detail. [5]

b) Explain important network management functions to the operation of the [10]

Network [10]

Q.6 Short notes on: (Attempt any four)

a) Fiber Bragg grating [20]

b) WDM network and architecture

c) Four wave mixing

d) Optical Access Network

e) OTDM
