

/ BE (VII) STRA / OFC / CBAS / 18/12/17.

Q.P. Code : 013203

Sub. - Elective - 1 : Optical Fiber Communication

[Time: 3 Hours]

[Total Marks: 80]

Please check whether you have got the right question paper.

- N.B:**
- 1) Question No. 1 is compulsory
 - 2) Attempt any three (03) Questions from remaining Five (05) Questions.
 - 3) Assume suitable data where ever necessary.

Q. 1 Attempt the following Questions (any 4)

- a) Define Snell's law and NA? 5
- b) Compare LED and LASER 5
- c) With the help of neat sketch, explain the working of optical isolator. 5
- d) Compare SOA and EDFA 5
- e) Explain the concept of power penalty in optical network 5
- f) Components of Typical WDM Link 5

Q. 2 a) What are the reliability considerations that the designer of optical source has to consider on OFC 10

b) What do mean by optical wave guide? How it is different from electrical wave guide? 10

A silica optical fiber with core diameter large enough to be considered by ray theory has a core refractive index of 1.5 and cladding refractive index of 1.47 Determine - (i) The critical angle (ii) The NA (iii) The Acceptance Angle

Q. 3 a) Explain the basic principle of operation of photo detector Explain the working of PIN Diode 10

b) What is the significance of "V" number? Get an expression for it in term of Numerical Aperture. 10

Q. 4 a) Generic configuration of typical SONET or SDH Network, What are the Network Categories? Give the names of public Network established. 10

b) What are the different types of fiber grating? Briefly explain the working of each type. 10

Q. 5 a) What is the Principle of OTDR Operation? Explain the method of Attenuation measurement using OTDR 10

b) What is the Basic PON Architecture? write note on IP over DWDM 10

Q. 6 Write short note on (any 4) :- 20

- a) Raman Amplifier
- b) Modified Chemical Vapour Deposition (MCVD) method of fiber fabrication
- c) Fabry Perot Filter
- d) Network management functions & Fault management
- e) Connectors used in optical fiber communication

Seat No. _____