Q.P. Code : 013203

[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? 8riefly 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 8asic 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
