Optical Communication and Networks   **Q.P. Code :27410**

[Time: Three Hours]   **[Marks:80]**

Please check whether you have got the right question paper.

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.   (a) Define Fresnel Reflection. Numerical Aperture and V-number.   **5**
(b) Differentiate APD and PIN code.   **5**
(c) Define Splicing. Mention its types and limitations.   **5**
(d) Define Four Wave Mixing (FWM).   **5**

2.   (a) Explain OTDR working principle in detail. Mention its limitation.   **10**
(b) Discuss different types of Dispersion in optical fiber.   **5**
(c) What is DWDM? Mention its advantages and disadvantages.   **5**

3.   (a) Explain in brief any two Fiber Fabrication Techniques.   **10**
(b) Explain working principle of LASER source used in optical fiber communication.   **5**
(c) Compare Circulator and Isolators.   **5**

4.   (a) Derive an expression for Link Power Budget Analysis of optical fiber.   **7**
(b) Explain EDFA amplifier. Mention its advantages.   **8**
(c) Explain Macro Bending loss.   **5**

5.   (a) Explain Optical Safety and Cross talk.   **10**
(b) Derive an expression for Power Penalty with Impairment.   **10**

6.   Write short note on **any two:**   **20**
(a) SONET / SDH
(b) OTDM
(c) Optical Access Network
(d) Wavelength Stabilization

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