BIEL-017

B.Tech. ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

December, 2012

BIEL-017 : OPTICAL FIBER COMMUNICATION

Time : 3 hours   *Maximum Marks : 70*

Note :   *All questions carry **equal marks**. Attempt **any seven** questions out of **Ten** questions.*

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1. (a) What is optical fiber communication system ? Explain with the help of suitable diagram ?   5

   (b) What are the different applications of optical fiber communcation system ?   5

2. (a) Explain the structure of optical fiber.   5

   (b) Explain the types of optical fiber on the basis of grading profile.   5

3. (a) Explain the principle of light propogation in optical fiber.   5

   (b) What is angle of acceptance ? A silicon optical fiber has numerical aperture 0.4, determine angle of acceptance.   5

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4. (a) Explain the types of optical fiber on the basis   5
       of modes.

   (b) What is mode field diameter of a optical   5
       fiber ?

5. A Silical optical fiber has the core refractive index
   1.5 and cladding refractive index 1.47. Determine.

   (a) The critical angle at the core-cladding   5
       interface.

   (b) The numerical aperture of optical fiber.   5

6. (a) What is affect of dispersion in optical   5
       fiber ?

   (b) A multimode graded index fiber exhibits   5
       total pulse broading of $0.1\mu s$ over a distance
       of 15 km. Determine the maximum possible
       bandwidth on the link assuming no ISI.

7. (a) Explain the sources used for optical fiber   5
       communication system.

   (b) Explain the diference between edge LED   5
       and surface LED.

8. (a) Explain the emission principle of light in   5
       LED.

   (b) Explain the type of semiconducter used for   5
       fabrication of LED.

9. (a) Explain the lasing phenomenon in Laser   5
       diode.

   (b) Explain the difference between laser light   5
       and LED light.

10. Write short notes on *any two* of the followings :   **2x5=10**

    (a) Photo transister

    (b) BER of optical receiver

    (c) power budget in optical fiber system.

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