355

*1326 *

EIC-011

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID :132651

Roll No.

B. Tech.

SPL. THEORY EXAMINATION, 2014-15

OPTO ELECTRONICS

Time : 3 Hours]   *[Total Marks : 100*

Note: All questions are compulsory:

1. Attempt any two parts of this question: 5×2=10

    (a) Briefly discuss with the aid of suitable diagram what is meant by acceptance angle. How is it related to fiber numerical aperture and refractive indices of the core and cladding?

    (b) Explain the relationship between wavelengths, responsity and quantum efficiency in a photo detector. Draw the graph also.

    (c) Derive the field component when optical signal is incident on dielectric slab. Discuss the significance of mode of propagation.

2. Attempt any two parts of this question: 5×2=10

    (a) Discuss briefly Parametric amplification.

    (b) Using ray theory, describe the mechanism for transmission of light within an optical fiber.

    (c) With the help of suitable diagram and mathematics explain the working of longitudinal Electro optic amplitude modulator.

3. Attempt any two parts.   5×2=10

    (a) Discuss Recording and reconstruction of Fourier Transform Hologram

    (b) Discuss the working of integrated optical spectrum analyzer. Explain the application of any device depending on Faraday rotation effect.

    (c) Explain the working of Fiber optic Gyroscope.

4. Attempt any two parts.   5×2=10

    (a) Write Note on Spatial Light modulators

    (b) Classify different optical fiber sensors. What is difference between single mode and multimode optical fiber sensor?

    (c) With mathematical support discuss phase transforming property of thin lens.

5. Attempt any two parts.   5×2=10

    (a) Add $(25)_{10}$ and $(13)_{10}$ in MSD arithmetic. perform 46-12 using residue arithmetic with the bases 3,5,7.

    (b) Write a note on half tone processing.

    (c) What do you mean by theta modulation devices shadow casting and symbolic substitution?

—x—