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Question Paper Code: 37402

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

Seventh Semester

Electronics and Communication Engineering

01UEC702 - OPTICAL COMMUNICATION AND NETWORKS

(Regulation 2013)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

- Snell's law is
 - $n_1 \sin\phi_1 = n_2 \sin\phi_2$
 - $n_1 \cos\phi_1 = n_2 \cos\phi_2$
 - $n_1 \tan\phi_1 = n_2 \tan\phi_2$
 - $n_1 \cot\phi_1 = n_2 \cot\phi_2$
- The cutoff normalized frequency of single mode fiber is
 - $V_C = 2.504$
 - $V_C = 2.045$
 - $V_C = 2.450$
 - $V_C = 2.405$
- Scattering loss occurs due to
 - Microscopic variations
 - Compositional fluctuations
 - Semi-permanent joint
 - All of the above
- Fiber splicing is a type of
 - Temporary joint
 - Permanent joint
 - Semi-permanent joint
 - None of the above
- Single mode laser sources are used for
 - Short distance communication
 - Medium distance communication
 - Long distance communication
 - All of the above

6. RAPD is

- (a) Rise through avalanche photo diode (b) Repeat through avalanche photo diode
(c) Reach through avalanche photo diode (d) Reduce through avalanche photo diode

7. The advantages of preamplifier is

- (a) Low bandwidth (b) High bandwidth (c) Low gain (d) Low dynamic range

8. A common method for determining the total fiber attenuation per unit length is

- (a) Interferometric method (b) Cut-back method
(c) Time domain method (d) Frequency domain method

9. The transfer of information from source to destination through a series of intermediate nodes is

- (a) Topology (b) Routing (c) Switching (d) Network

10. The non linearity of a propagating signal in carrier induced phase modulation is called

- (a) Kerr effect (b) chirp effect
(c) Optical loss (d) cross phase effect

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain acceptance angle and Numerical Aperture of fibers. (8)
12. Explain the causes and types of fiber attenuation loss with necessary diagrams. (8)
13. What are the possible noise sources that contribute the photo detector noise. (8)
14. Explain the fundamental receiver operation in optical communication link. (8)
15. Explain in detail SONET layers and frame structure with diagram. (8)