

School of Electrical Electronics and Communication Engineering
Electronics and Communication Engineering
ETE - Jun 2023

Time : 3 Hours

Marks : 50

SEM VI - BECE3016 - OPTICAL COMMUNICATION

Your answer should be specific to the question asked

Draw neat labeled diagrams wherever necessary

1. What is meant by the term critical propagation angle? K2 CO4 (2)
2. Derive the relationship between n_1 , n_2 & D_a . Each symbols is specific representation of parameters in OFC. K2 CO3 (2)
3. Define Acceptance angle. K2 CO5 (2)
4. Explain beat length in single mode fibers. K1 CO1 (2)
5. Define MFD? K1 CO2 (2)
6. What is the population Inversion? Explain the mechanism of Population inversion for three level & four level energy state system. K3 CO1 (5)
7. Write a brief note on polarization maintain fiber. K4 CO6 (6)
8. Sketch and explain the block diagram of Optical Fiber Communication system. K3 CO2 (5)
9. Explain how the transmission paths are established across an Optical network. Explain various network topologies. K4 CO3 (8)
10. Briefly discuss the evolution of Optical networks. Indicate the significant features of the optical network generations. K5 CO4 (8)
11. An optical link is to be established between two stations within a township at a distance of 6000 meters. To test the performance of the link, the set up consisting of step index (multimode fiber) with a core refractive index of 1.49 and a relative refractive index difference of 2%. Calculate:
 - (a) How much broadening in the rms pulse due to intermodal dispersion
 - (b) How much would be the delay difference between the slowest and fastest modes at output?