B.E | Sem VIII | EIT | Aug-25 | 23-08-25

Time: 3 Hours **Max Marks: 80**

N.B: 1. Question number **1 is compulsory**

2. Solve any **Three** questions from the remaining Five questions.

3. Draw neat sketches wherever required.

Q1 Solve any Four

a) Explain briefly about fiber optic color code and its significance. (5)

b) Compare Optical Isolator with Coupler. (5)

c) Explain the working principle of LASER with a diagram. (5)

d) Explain the concept of Otical safety (5)

e) Briefly explain the Step Index and graded index optical fibers with core & cladding dimensions (5)

f) Explain Photonic crystal fibers and explain its applications? (5)

Q2 a) Derive an expression for Link Power Budget analysis of an optical fiber. (8)

Q2 b) Explain OTDR working principle in detail. Also explain its applications. (7)

Q2 c) Is cladding essential for signal transmission. what are the benefits of providing cladding? (5)

Q3 a) What is an optical amplifier. Compare different types of optical amplifiers. (10)

Q3 b) Differentiate between PIN and APD. Define quantum efficiency, Responsivity and long wavelength cut off for photo detector (10)

Q4 a) Explain in detail structure of SONET/SDH network. (10)

Q4 b) Explain micro bending and macro bending losses in optical fiber. Support your anser with a diagram? (10)

Q5.a) Explain Performance and fault management in optical network (10)

Q5 b) List down the methods of fiber fabrication. Explain vapour axial deposition (VAD) method in detail with a neat diagram. (10)

Q6 Write short notes on **(Any TWO)**:- (20)

i) OTDM

ii) FTTH network

iii) Fiber Bragg Grating and its applications
