K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

~~May-June 2025~~ July-Aug-2025

Supplementary | (B. Tech) Program: EXTC Scheme II
~~Regular Examination~~: LY Semester: VIII
Course Code:EXC801 and Course Name:Optical Communication Networks

Date of Exam: ~~18/07/2025~~ 28/07/25   Duration: 02.5 Hours   Max. Marks: 60

Instructions:
(1) All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any **two** questions out of three: (05 marks each)	10		
a)	Draw the schematic diagram of the optical fiber communication system. Explain the function of each block.		CO1	U
b)	Write down the differences between LED and Laser Diodes.		CO3	U
c)	Enumerate the various SONET / SDH layers and its functions ?		CO5	U
Q 2	Solve any **two** questions out of three: (05 marks each)	10		
a)	Explain dispersion and its type in optical fiber.		CO2	U
b)	Explain fibre bragg grating? Give its application.		CO4	U
c)	Explain with diagrams Multimode Step Index and Graded Index Fiber.		CO1	U
Q.3	Solve any **two** questions out of three. (10 marks each)	20		
a)	Define and explain the following terms with respect to optical laws. 1. Refractive index. 2. Snell's law. 3. Critical angle. 4. Total internal reflection. 5. Acceptance angle. 6. Numerical aperture		CO1	U
b)	With schematic representation explain the working principle of PIN photodiodes. Mention its advantages and disadvantages.		CO3	U

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c)	Explain following 1. Wavelength Routing 2. Automatic protection switching in SONET linear networks		CO5	U
Q.4	Solve any **two** questions out of three. (10 marks each)	20		
a)	Explain the fiber bending losses with a neat diagram.		CO2	U
b)	Explain the following with diagram 1. Fabrey Parot filter 2. Wavelength Division Multiplexer.		CO4	U
c)	Write note on 1. Optical safety 2. Functions of network management			

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