R18

ANURAG Engineering College
(An Autonomous Institution)
IV B. Tech I Semester Regular/Supplementary Examinations, Dec-2024
OPTICAL COMMUNICATION
(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours   **Max. Marks: 75**

Section – A (Short Answer type questions)
Answer All Questions   **(25 Marks)**

	Course Outcome	B.T Level	Marks
1. Define Numerical aperture and Acceptance Angle.	CO1	L1	2M
2. List the advantages of optical fiber communication system.	CO1	L1	3M
3. Define dispersion and mention different types of dispersion.	CO2	L1	2M
4. Explain the concept of connector return loss.	CO2	L2	3M
5. Define quantum efficiency and modulation.	CO3	L1	2M
6. What are the advantages of LED.	CO3	L1	3M
7. Define Detector response time.	CO4	L1	2M
8. Explain the concept of digital signal transmission.	CO4	L2	3M
9. Explain the concept of WDM in optical communication.	CO5	L2	2M
10. What is multiplexing and mention the advantages of WDM.	CO5	L2	3M

Section B (Essay Questions)
Answer all questions, each question carries equal marks.   **(5 X 10M = 50M)**

		Course Outcome	B.T Level	Marks
11. A)	Using ray theory transmission approach, explain the following i) Total internal reflection and critical angle ii) Effective refractive index iii) Skew rays	CO1	L3	10M
	OR			
B)	Explain the attenuation caused by absorption, scattering losses	CO1	L3	10M
12. A)	Explain material dispersion and waveguide dispersion	CO2	L3	10M
	OR			
B)	Discuss the different types of fiber splicing techniques	CO2	L3	10M
13. A)	What power is radiated by LED if its quantum efficiency is 3% and peak wavelength is 670nm	CO3	L3	10M
	OR			
B)	Derive the expression for losing and threshold condition	CO3	L3	10M
14. A)	Draw the schematic block diagram of optical receiver and explain each block in detail.	CO4	L3	10M
	OR			
B)	Give the comparison of PIN and APD photo detector	CO4	L3	10M
15. A)	Analyze the link power budget of optical fibre communication in terms of analog system design	CO5	L3	10M
	OR			
B)	Describe in detail about Rise time budget of optical fibre communication in terms of digital system design	CO5	L3	10M