

## G.T.N. ARTS COLLEGE (AUTONOMOUS)

(Affiliated to Madurai Kamaraj University || Accredited with 'B' Grade by NAAC) END SEMESTER EXAMINATION - NOVEMBER - 2021

## (UNDER OUTCOME BASED EDUCATION (OBE) PATTERN)

Programme : M.Sc. Physics	Date : 05.02.2022
Course Code : 20PPHE32	Time : 10:00 AM - 1:00 PM
Course Title : Fiber Optics Communication	Max. Marks : 60

Q. No.	SECTION - A (10 * 1 = 10 Marks) Answer ALL Questions		CO(s)	K - Level
1.	The core diameter for step index fiber is		CO1	K2
	1.50-200 μm	2.50-500 μm		
	3.500-1000 μm	4.10-50 μm		
2.	How many spectral bands was designated by the international telecommunications union		CO1	K1
	1.Seven	2.Six		
	3.Two	4.Four		
3.	loss that occurs when energy is transferred from one circuit, circuit element, or medium to another.		CO2	K2
	1.Scattering	2.Coupling		
	3.Dispersion	4.Bending		
4.	The loss within a cable is described in terms of	í	CO2	K1
	1.dB/km	2.dB/cm		
	3.dB/m	4.dB/mm		
5.	The modified chemical vapor deposition process was pioneered at laboratories.		CO3	K2
	1.PRL	2.NREL		
	3.NPL	4.Bell		
6.	Active glass fibers are formed by adding	to the glass fibers.	CO3	K1
	1.potassium and sodium	2.erbium and neodymium		
	3.fluorine and chlorine	4.nitrate and chloride		
7.	If the valence band maximum and the conduction band minimum are situated in same direction of first brillouin zone, is called		CO4	K2
	1.Indirect gap	2.Direct gap.		
	3.Energy gap	4.Gap		
8.	Planck's constant value is		CO4	K1
	$1.h = 6.6256x \ 10^{-34}$ seconds	$2.h = 7.6256 \times 10^{-34}$ joule		
	$3.h = 6.6256 \times 10^{-34}$ joule-seconds	$4.h = 8.6256 \times 10^{-34}$ joule-seconds		
9.	occurs when a wave hits boundary between two media where the wave speeds		CO5	K2

	differ, but the wave stays in the original medium instead of pass	ing into the second		
	medium. 1.Total internal Reflection 2.Refraction	1		
	3.Reflection 4.Reflectan	ce		
10.	The acceptance angel of a material with a numerical aperture of	The acceptance angel of a material with a numerical aperture of 0.707 in air is		
	1.30 2.60			
	3.40 4.45			
Q. No.	SECTION - B (5 * 4 = 20 Marks) Answer ALL Questions		CO(s)	K - Level
11. (a)	Relate function of core with cladding in optical fiber.		CO1	K1
	[OR]			
(b)	List out the advantages and disadvantages of fiber optic commu	nications.	CO1	K1
12. (a)	Outline the scattering losses in optical fibers.		CO2	K2
( <b>b</b> )	[OR]		COL	V2
(0)			002	K2
13. (a)	Show the plastic fibers and their applications.		003	К3
(b)	Examine the rod-in-tube method.		CO3	K3
14. (a)	Show the direct and indirect band gap with suitable diagram.		CO4	K3
	[OR]			
(b)	Examine the p-i-n photodiode and give two advantages.		CO4	K3
15. (a)	Explain the measurements of mode field diameter.		CO5	K4
	[OR]		00 <i>5</i>	77.4
(b)	Explain the numerical aperture.		CO5	K4
Q. No.	SECTION - C (3 * 10 = 30 Marks) Answer any of 3		CO(s)	K - Level
16.	What are the application of step index and graded index fiber?		CO1	K1
17.	Outline the fiber splicing in detail with satiable diagram.		CO2	K2
18.	Examine the modified chemical vapor deposition with diagram a this method.	nd give the advantage of	CO3	K3
19.	Can you compare photodiode withphotodetector?		CO4	K3
20.	Explain the measurements of mode field diameter in detail.		CO5	K4
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