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<b>R-17</b>
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**Code: 7G371**

IV B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

## Optical Fiber Communication

(Electronics and Communication Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks )

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		Marks	CO	BL
<b>UNIT-I</b>				
1.	a) Discuss the Historical developments of Optical communications	7M	1	2
	b) Draw a basic block diagram of Optical communication system and compare this with the general communication system	7M	1	3
<b>OR</b>				
2.	a) Explain the signal mode fibers with neat diagrams and necessary expressions	7M	1	2
	b) Discuss various Fiber materials used to fabricate optical fibers	7M	1	1
<b>UNIT-II</b>				
3.	a) Summarize working principle of Surface emitting LED with the help of diagram	7M	3	2
	b) Interpret Direct and Indirect band gap materials used in light sources with diagrams	7M	3	2
<b>OR</b>				
4.	a) Outline the Internal quantum efficiency and LED power with bulk recombination lifetime	7M	2	4
	b) Analyze the Fabry-Perot Resonator Cavity Laser Diode	7M	3	4
<b>UNIT-III</b>				
5.	a) Interpret the operation of Avalanche photodiode with photodiode structure.	7M	4	2
	b) Illustrate Quantum efficiency, Responsively, Carrier multiplication of photodiode	7M	4	3
<b>OR</b>				
6.	a) Differentiate between the photo diode parameters 'Quantum limit' and 'Dark current'	8M	3	2
	b) Identify major differences between PiN photodiode and Avalanche photo diode.	6M	3	1
<b>UNIT-IV</b>				
7.	a) Write a short note on Fiber Bend Losses	7M	2	1
	b) Describe chromatic dispersion mechanism in optical fibers	7M	2	6
<b>OR</b>				
8.	a) Illustrate various types of Lensing schemes for coupling improvement	7M	2	5
	b) How power launching is performed from source to fiber	7M	2	2
<b>UNIT-V</b>				
9.	a) List the advantages and necessity of Wavelength Division Multiplexing	6M	4	1
	b) Classify and discuss about the types of noises affecting the Signal to Noise Ratio	8M	3	4
<b>OR</b>				
10.	a) Describe short notes on Multi-channel transmission techniques	7M	3	2
	b) Discuss about Radio over fiber links.	7M	3	2

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Hall Ticket Number :

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**R-17**

**Code: 7G17E**

IV B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

## **Computer Networks**

(Electronics and Communication Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

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### **UNIT-I**

1. a) Explain briefly about Public Switching Telephone Networks 7M
- b) Define Multiplexing and classify its types .Differentiate Multiplexing Techniques 7M

**OR**

2. a) Explain OSI - ISO Reference model 10M
- b) Compare LAN, MAN, WAN 4M

### **UNIT-II**

3. a) Illustrate sliding window protocols. 7M
- b) Write a brief note on Multiple Access Protocols. 7M

**OR**

4. a) Elaborate CSMA/CD in detail. 7M
- b) Explain IEEE 802.3 frame format. 7M

### **UNIT-III**

5. a) What is routing? Discuss briefly about shortest path routing algorithm. 7M
- b) Explain the principles of congestion control. 7M

**OR**

6. a) List and explain in detail the classes of IPV4 addresses. 8M
- b) Draw the IPV4 header format and Explain. 6M

### **UNIT-IV**

7. a) Describe Transport Services 6M
- b) Explain the IPV6 header format with neat sketch 8M

**OR**

8. a) Compare UDP and TCP Transport Protocols 8M
- b) List the advantages of Internet Transport Protocols 6M

### **UNIT-V**

9. a) Explain broadcast, point to point and Multipoint networks. 6M
- b) Discuss the basic model of FTP and its function in communication system. 8M

**OR**

10. a) What are the advantages & disadvantages of public and secret key encryption? 8M
- b) Define ATM. What are advantages of ATM Network? 6M

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