

Subject Code: XXXXX

Roll No:

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**BTECH
(SEM-7) OPTICAL NETWORK 2021-22**

TIME:3 HOUR

Total Marks: 100

Instruction: Attempt the questions as per the given instructions. Assume missing data suitably.

SECTION - A

Attempt *All Parts* in Brief

2*10 = 20

Q1	Questions	Marks
(a)	Define the single mode fiber.	2
(b)	List the advantages for using optical fiber in long haul communication.	2
(c)	State the function of couplers.	2
(d)	Describe difference between SONET and ATM.	2
(e)	What is photonic signal processing ?	2
(f)	List out the name of switching methods used in optical network.	2
(g)	Summarize the need of optical fiber in the communication.	2
(h)	Describe different capabilities of optical transport network.	2
(i)	Discuss the bidirectional protection switching.	2
(j)	Differentiate between broadcast and switched network.	2

SECTION - B

Attempt Any Three of the following

3*10 = 30

Q2	Questions	Marks
(a)	Describe how the attenuation affects the signal in fiber optic communication.	10
(b)	Differentiate between circulator and isolator.	10
(c)	Appraise the key attributes for SONET/ SDH in comparison of PDH.	10
(d)	Describe why optical layer protection needed.	10
(e)	Explain, how the bit interleaved multiplexing operation performed, optically.	10

SECTION - C

Attempt Any One of the following

5*10 = 50

Q3	Questions	Marks
(a)	Illustrate the building blocks of optical network.	10
(b)	Explain different parts of public networks.	10
Q4	Questions	Marks
(a)	Elaborate Bragg grating with diagram.	10
(b)	Discuss the design of a directional coupler.	10
Q5	Questions	Marks
(a)	Describe path, line, section and physical layers in SONET layer.	10
(b)	Explain the parameters used to characterize the suitability of a switch for optical networking applications.	10
Q6	Questions	Marks
(a)	Explain the terms enhanced HFC and FTC.	10
(b)	Describe the difference among protection at different layers.	10
Q7	Questions	Marks
(a)	Explain the difference between bit interleaved and packet interleaved optical time division multiplexing.	10
(b)	Write short note on SONET/ SDH.	10

