PAPER ID-410707

Subject Code: REC070

Roll No: | | | | | | | | | | | | | |

B TECH
(SEM –VII) THEORY EXAMINATION 2021-22
OPTICAL NETWORKS

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. Explain self phase modulation.

b. Name the different Optical Networks multiplexing techniques.

c. ın.

d. g?

e. Explain Optical Layer Protection.

f. Explain the Function of ATM.

g. What is Optical Switching?

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. Why do we need to develop WDM fiber optic network? Why is WDM the major trend in Fiber optic network?

b. What is an optical add/drop multiplexer?.

c. Explain the principle of operation of Fabry Perot (FP) filter and Mach Zehnder Interferometer (MZI)?

d. What is Crosstalk? Explain Intra-channel crosstalk and inter-channel crosstalk.

e. Explain the function & the Principle of operation of Wavelength Converters?

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain the various Optical Networks multiplexing techniques.

(b) Explain the optical network layered architecture with a diagram

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain the concept of Gratings, Bragg grating and Fiber gratings

(b) Explain the Principles of operation of Multiplexers and filters.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain the SONET format with neat diagram.

(b) Explain the Principles Acousto-optic tunable filter.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain Light path Topology Design and Network Survivability

(b) Explain the concept of Protection in client layer. Also explain Optical Layer Protection scheme.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) Discuss the concept of Header Processing, Buffering and Burst Switching.

(b) Discuss the concept of Optical Switching, OTDM and Synchronization.