

USN

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

10TE81

Eighth Semester B.E. Degree Examination, June/July 2017

Optical Networking

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Explain the evolution of optical fiber transmission system. (08 Marks)
- b. Explain the services offered by second-generation optical networks. (06 Marks)
- c. What are solitons? Explain the significance of solitons for optical communication and give an application. (06 Marks)
- 2 a. What are isolators and circulators? Explain the principle of operation of polarization independent isolator. (10 Marks)
- b. Explain the principle of operation of Bragg gratings. With a neat diagram, explain optical add/drop elements based on fiber bragg grating. (10 Marks)
- 3 a. What is wavelength conversion? Explain different techniques of wavelength conversion. (10 Marks)
- b. Explain the working of PIN photodiode. What is the limitation of PIN photodiode and how avalanche photodiode overcome the limit? (10 Marks)
- 4 a. Discuss several forms of dispersion arise in optical communication systems and explain how chromatic dispersion is compensated using Chirped fiber bragg gratings. (10 Marks)
- b. What are the sources of interchannel and intrachannel cross talk? Explain how switch crosstalk can be reduced. (10 Marks)

PART – B

- 5 a. With a neat diagram, explain different elements of a SONET/SDH infrastructure. (10 Marks)
- b. Write short notes on: i) ESCON, ii) FDDI. (10 Marks)
- 6 a. Describe the traffic models commonly employed to study optical networks. (10 Marks)
- b. What are the different types of wavelength conversion techniques? Explain limited wavelength and full wavelength conversion with a neat sketch. (10 Marks)
- 7 a. Discuss different types of protection mechanisms that are used for simple point-to-point links. Explain how line switching is implemented in a mesh network. (10 Marks)
- b. Explain the functions of network management. (10 Marks)
- 8 a. Discuss optical time division multiplexing for packet interleaving. (10 Marks)
- b. Discuss architecture of an access network. Explain the two main approaches proposed to upgrade the access network infrastructure. (10 Marks)

* * * * *

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.