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10TE81

Eighth Semester B.E. Degree Examination, July/August 2021
Optical Networking

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions.***

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.

1 a. With a suitable diagram, explain Telecommunication Network Architecture. **(08 Marks)**
b. Describe the Second generation Network Architecture. **(08 Marks)**
c. Explain briefly Optical Fibre, with a neat diagram. **(04 Marks)**

2 a. What is a Coupler? Explain the principle of Operation in a Coupler. **(08 Marks)**
b. What are the key characteristics for a Optical filter to be used in systems? **(04 Marks)**
c. Explain the structure of EDFA and its principle of operation. **(08 Marks)**

3 a. What are the main considerations in building large switches? **(04 Marks)**
b. Draw the structure of Vertical Cavity Surface Emitting Lasers. Explain its advantages and disadvantages. **(06 Marks)**
c. What is a Wavelength Converter? With the help of a neat diagram, explain the Optoelectronic approach of achieving wavelength conversion. **(10 Marks)**

4 a. Define Crosstalk. Discuss about the sources of Intrachannel and Interchannel crosstalk with a suitable diagram. **(10 Marks)**
b. How do a Chirped Fiber Bragg Grating Compensate chromatic dispersion? **(06 Marks)**
c. Write a short note on Cascaded Filters. **(04 Marks)**

5 a. List the benefits of SONET/SDH over PDH. **(05 Marks)**
b. Explain the header structure of ATM. **(05 Marks)**
c. Describe the elements of SONET/SDH infrastructure using a neat diagram. **(10 Marks)**

6 a. With a neat diagram, explain the role of optical add/drop multiplexers in a linear network. **(10 Marks)**
b. Schematically explain the three different light path topologies that can be deployed over a fiber ring. **(10 Marks)**

7 a. With the help of a neat figure describe how network management functions are implemented on a optical network. **(10 Marks)**
b. Explain Network Management functions. **(05 Marks)**
c. Briefly explain Alarm Management. **(05 Marks)**

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8 a. Explain the architecture of a Access Network. **(08 Marks)**
b. Briefly explain functions of Routers. **(04 Marks)**
c. Explain Fiber to Curb (FTTC) transmission scheme. **(08 Marks)**

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