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M.TECH

Total Number of Pages :

M.TECH 1ST SEMESTER REGULAR EXAMINATIONS, DECEMBER 2018

OPTICAL NETWORKS

Branch: EC, Subject Code:MECPE1032

(Regulations 2018)

Time: 3 Hours

Max Marks : 70

Question Code: RD18002066

PART-A (10 X 2=20 Marks)

1. Answer the following questions.
 - a. Specify the Protection architectures of SONET.
 - b. List any 2 features of shuffle net multihop Network.
 - c. Define MAN and WDM.
 - d. Mention the differences between circuit switching and packet switching.
 - e. What is digital wrapper?
 - f. What are the different loss components in optical fibers?
 - g. What is an optical add/drop multiplexer?
 - h. What are the constraints for wavelength assignment?
 - i. What are different types of MPLS nodes?
 - j. What is path protection switching?

PART-B (5 X 10=50 Marks)

Answer any five questions from the following.

2. a) Explain the principle of operation of WDM in optical communication with its advantages and disadvantages. [5]
b) Illustrate the role of Optical Add/Drop Multiplexer (OADM) in providing cost effective means of handling traffic in optical networks. [5]
3. a) Discuss different OADM architectures with neat diagram. [5]
b) Draw the block diagram of broadcast and select ROADM and explain its functioning. [5]
4. a) Explain the different multiplexing techniques in optical networks. [5]
b) Discuss cost tradeoffs by considering a PWDM ring architecture. [5]
5. a) Explain light path topology design (LTD) problem in brief. [5]
b) What is dispersion and how does it limit the bandwidth? [5]
6. a) Explain unidirectional path switched rings used in the protection of SONET / SDH. [5]
b) Discuss the protection in IP with an example. [5]
7. a) What are the different types of topologies used in optical networks? [5]
b) Explain the working of the point-to-point topology and its reliability. [5]
8. Write short notes on
 - a) Wavelength Converters [5]
 - b) Couplers. [5]