

**M.E DEGEREE EXAMINATIONS: JANUARY 2011**

First Semester

**COMMUNICATION SYSTEMS**

COM503: Optical Communication Networks

**Time: Three hours**

**Maximum Marks: 100**

**Answer all questions:-**

**PART A (10 x 2 = 20 Marks)**

1. What are the characteristics of optical filters? What are its types?
2. Give the principle of operation of optical amplifier
3. What are the different topologies in SONET Rings
4. How is STS - 1 frame organized?
5. List any two features of shuffle net multihop Network
6. Compare single hop and multihop network.
7. Draw the block diagram of wavelength cross connect mode.
8. Explain 3R concept
9. What are the key design objectives of optical TDM Networks?
10. What is the role of local exchange networks?

**PART B (5 x 16 = 80 Marks)**

11. a) (i) With neat diagram explain the construction of Optical Networking. (8)  
(ii) Write short notes on optical switches. (8)  
(OR)  
b) Discuss the optical components Electro-optical directional coupler and isolators.
12. a) Explain the protection techniques adopted in SONET.  
(OR)  
b) With neat diagram, explain the elements of SONET infrastructure.
13. a) Explain the functions of Media access control protocols  
(OR)  
b) What is meant by Broadcast and select Network? Discuss the design issues and objectives in detail.
14. a) Explain in detail the issues in network design of wavelength routing networks and optical layer cost tradeoffs.  
(OR)  
b) Explain about any two wavelength routing test beds.
15. a) Discuss about OTDM synchronization.  
(OR)  
b) Discuss in detail, SDM, TDM and WDM approaches in High capacity Networks.

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