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Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(ECE) (2018 Batch) (Sem.-1)

**OPTICAL NETWORKS**

Subject Code : MTEC-PE1X-18-2

Paper ID : [75175]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. Attempt any FIVE questions out of EIGHT questions.

2. Each question carries TWELVE marks.

- Q1. a) Discuss the SONET frame structures.  
b) Explain the following functions of ATM  
i) Connections and cell forwarding  
ii) Signaling and Routing
- Q2. a) Explain the features and applications of optical amplifiers and optical switches.  
b) Explain the operating principle of optical mux and de-mux. Show how an optical AND gate can be used to extract a multiplexed channel.
- Q3. Illustrate the role of Optical Add/Drop Multiplexer (OADM) in providing cost effective means of handling traffic in optical networks. Compare the deployment of OADM with point to point WDM systems.
- Q4. Explain the different types of protection mechanisms used for point to points links. Compare Self-Healing Rings and Unidirectional Path-Switched Rings.
- Q5. Draw the block diagram of wavelength routing PON (WRPON) and explain its working.
- Q6. Explain the following :  
a) Recirculation Buffering  
b) Burst Switching
- Q7. Explain the functions of each element of an access network with a neat architectural diagram.
- Q8. Explain optical time division multiplexing (OTDM) with a neat figure.