

Duration: 3hrs

[Max Marks:80]

- N.B.: (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

- 1 Attempt any **FOUR** **[20]**
 - a Mention difference between circuit switching and packet switching.
 - b Calculate STS 1 (synchronous transport signal level 1) when the SONET frame has 125 μ s duration.
 - c Explain principle of operation of MachZender interferometer.
 - d Write short note on wavelength division assignment.
 - e Write short note on network survivability with protection of client layer. Discuss operation of internetwork between layers.
- 2 a Explain different multiplexing techniques in optical network. **[10]**
 b Explain principle of operation of operation of WDM in optical communication with its advantages and disadvantages. **[10]**
- 3 a Illustrate the role of optical add and drop multiplexer (OADM) in providing cost effective means of handling traffic in optical network. Compare deployment of OADM with point-to-point WDM systems. **[10]**
 b Explain in detail network management and protection architecture of SDH. **[10]**
- 4 a Explain working of multiprotocol lambda switching (MPLS) in optical network. Summarize how MPLS differs from multiprotocol label switching. **[10]**
 b Explain the advantages of switching in optical networks and how IP forwarding differs from label switching in optical networks? **[10]**
- 5 a Explain SDH frame structure and show that the basic bit rate is 51.84 Mbps. **[10]**
 b Explain the basic SONET transmission format with aid of a diagram. **[10]**
- 6 a Explain network management and discuss management framework. **[10]**
 b Write short note on (**any 2**) **[10]**
 - i) Couplers
 - ii) Solitons
 - iii) Wavelength converters.
