

Paper Id:

130741

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B. TECH.
(SEM. VII) THEORY EXAMINATION 2019-20
OPTICAL NETWORK

Time: 3 Hours**Total Marks: 70****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

- 1. Attempt all questions in brief. 2 x 7 = 14**
- a. Explain four wave mixing in brief.
 - b. Define channel spacing.
 - c. Define spectral efficiency.
 - d. Explain cross bar optical switch architecture.
 - e. Explain header processing in brief.
 - f. Draw SDH frame structure.
 - g. Discuss the advantages of WDM.

SECTION B

- 2. Attempt any three of the following: 7 x 3 = 21**
- a. Describe Stimulated Brillouin Scattering (SBS) and stimulated Raman Scattering (SRS) in detail.
 - b. What are Fiber gratings? Explain long period fiber gratings.
 - c. Discuss the elements of a SONET/SDH infrastructure in detail.
 - d. Write a short note on-
 - (i) FTTC
 - (ii) Access Networks.
 - e. Describe the Photonic Packet Switched (PPS) Networks in detail.

SECTION C

- 3. Attempt any one part of the following: 7 x 1 = 7**
- a. Explain optical packet switching in detail and also discuss its limitations.
 - b. Describe optical layer and its various client layers in detail.
- 4. Attempt any one part of the following: 7 x 1 = 7**
- a. Describe the optical switch technologies in detail.
 - b. Discuss the principle of operation of Fabry-Perot filters in detail.
- 5. Attempt any one part of the following: 7 x 1 = 7**
- a. Write short notes on Optical line terminals and optical line amplifiers.
 - b. Explain the SONET/SDH physical layer in detail.
- 6. Attempt any one part of the following: 7 x 1 = 7**
- a. Explain the cost trade-offs in WDM network. Give an account of routing and wavelength assignment problem in optical network.
 - b. Write a short note on network survivability with protection of client layer. Discuss the operation of interworking between layers.
- 7. Attempt any one part of the following: 7 x 1 = 7**
- a. Explain optical time division multiplexing (OTDM) in detail.
 - b. Write a short note on-
 - (i) Buffering
 - (ii) Burst Switching