YMCA UNIVERSITY OF SCIENCE & TECHNOLOGY, FARIDABAD
B. TECH. IT 7TH SEMESTER (UNDER CBS)
OPTICAL NETWORKS (IT-401)

Time: 3 Hours

Max. Marks: 60

Note: 1. It is compulsory to answer the questions of Part - A. Limit your answers within 20-40 word in this part.

2. Answer any four questions from Part - B in detail.

PART – A

Q1 (a) Define SONET/SDH and list out their benefits. (2)
   (b) What is the basic signal rate of SDH? (2)
   (c) When a node is called as add/drop multiplexer node? List various conversions involved in wavelength add/drop multiplexer. (2)
   (d) What are various SONET network elements? (2)
   (e) Write a short note on fiber loss budget analysis. (2)
   (f) How is waveguide dispersion dealt with? (2)
   (g) Explain optical transmitters. (2)
   (h) Discuss non-linearity in fiber. (2)
   (i) Why is WDM the major trend in Fiber optic network? (2)
   (j) Explain RPR provisioning. (2)

PART – B

Q2 (a) Discuss the multi-service provisioning platforms. (5)
   (b) Explain SONET protection mechanisms. (5)

Q3 (a) What are the advantages and drawbacks of fiber optical cables? Discuss. (5)
   (b) Discuss the major types of fiber optic cables. (5)

Q4 Explain the Multiplexing structure employed in SONET/SDH network? Also discuss some of the benefits of SONET/SDH. (10)

Q5 (a) Explain the principles of Wavelength-division multiplexing. (5)
   (b) Discuss coarse wavelength-division multiplexing and dense wavelength-division multiplexing. (5)

Q6 (a) Discuss SONET/SDH optical provisioning. (5)
   (b) Explain RPR provisioning aspects of the ONS 15454 for SONET and SDH. (5)

Q7 (a) Discuss Ethernet over Packet over SONET/SDH using ITU-T x.86 LAPS. (5)
   (b) Discuss ONS 15454 MSTP. (5)