# JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
## T2 EXAMINATION- 2024
### B.Tech-VII Semester (CSE/IT/ECE/CE/BT/BI)
COURSE CODE (CREDITS): 18B1WPH732 (3)

COURSE NAME: OPTICAL FIBER NETWORK DESIGN

COURSE INSTRUCTORS: SKK

MAX. MARKS: 25

MAX. TIME: 1.5 Hours

**Note: (a)** All questions are compulsory.

**(b)** All questions carry equal marks

**(c)** The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

1. What is RZ, NRZ and MC in optical fibers. What is their significance in relation to voltage levels for communication systems?

2. Derive relation for calculating power budget in a linear network.

3. What is the difference between linear and non linear scattering losses in optical fibers?

4. Draw a Data frame and explain its working.

5. (a) Consider a star network with connector loss of 1dB per pair and insertion loss of 0.5 dB per channel, calculate the system losses for N=4 and N=100 stations on the fiber ignoring fiber loss and system margin.

   (b) Consider a data bus that taps 20% of light into the arms of a Tee couplers in use. The insertion loss per tee is 0.5 dB, calculate the system losses for N=4 and N=50 stations on the fiber ignoring fiber loss and system margin.