

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B.Tech-VII Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): 18B1Wph732 (3)

MAX. MARKS: 35

COURSE NAME: OPTICAL FIBER NETWORK DESIGN

COURSE INSTRUCTORS: SKK

MAX. TIME: 2 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. (a) Explain the concept of cutoff wavelength in an optical fiber. Calculate cutoff wavelength of a single mode 8/120 fiber with core index of 1.467 and fraction of 2.3%.
(b) Explain the difference between step index and graded index fiber on the bases of NA and V parameter.
2. Explain different types of data coding in an optical link design. Explain how the dynamic range is calculated for the link design.
3. What is an FDDI network. Explain the concept of PHY and PMD layers of FDDI network? Draw Frame and Token format.
4. How is Token Frame converted into Data Frame in a FDDI network.
5. Consider three network configurations of ring network (i) 20 stations on 4 km fiber (ii) 100 stations on 200 km fiber and (iii) 500 dual attachment stations on 200 km fiber. Calculate ring latency, efficiency and maximum access delay time.
6. Explain the working of SONET overheads with suitable diagrams
7. Draw a switched WDM network with 1xN and Nx1 couplers and explain its working.