

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2024

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

COURSE CODE (CREDITS): 18B1WPH732

MAX. MARKS: 35

COURSE NAME: OPTICAL FIBRE NETWORK DESIGN

COURSE INSTRUCTORS: SKK

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.

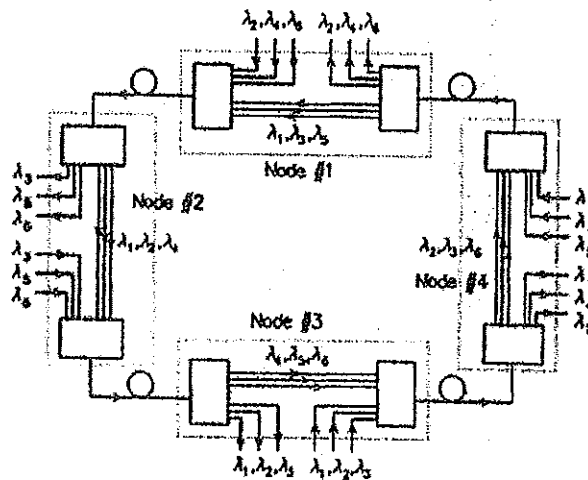
(b) You can carry the handouts of PPT provided by the course coordinator

(c) All questions carry equal marks

1. Sketch WDM network configuration for N=3 using the following table. (CO4)

Method	Minimum number of wavelengths
Star	$N - 1$
Chain	$\left(\frac{N}{2}\right)^2$ (if N is even) $\frac{(N-1)(N+1)}{4}$ (if N is odd)
Ring	$\frac{N(N-1)}{2}$

2. Make a wavelength assignment table for the four node ring network shown in figure (CO4)



3. Consider a 10 station linear data bus with connector loss of 0.5dB per connector, coupling fraction of 2.5% at each arm of the coupler, insertion loss of 1 dB per coupler, fiber loss of 3dB/Km and station spacing of 1 Km. calculate the dynamic range required of the receiver used in this network. (CO4)
4. Consider a FDDI link with transmitter power of -16 dBm and receiver sensitivity of -27 dBm, the loss in the fiber has a worst-case value of 2.5 dB/Km and loss of connectors is

1dB per pair, The loss of bypass switch station is 2dB when bypassed. Station separation is 2 Km. ignoring all other losses, how many consecutive stations can be shut down in network between two active stations (CO4)

5. Explain working of SONET overhead channels with examples. (CO3)
6. Explain with example and block diagrams, the conversion of data frame to token frame in ring network. (Station 2, 5, 8 and 15 has data to send and rest all are ideal in a ring of 50 stations) (CO4)
7. What is Brillouin & Raman scattering in the fiber. Explain in detail (CO1)

UNIT TEST-3 EXAMINATION- Dec-2024