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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHT
TEST-3 EXAMINATION-May-2019
B.TECH (VIII SEMESTER)

COURESE CODE: 10B1WPH732 MAX.MARKS: 35
COURSE NAME: OPTICAL FIBER NETWORKS
COURSE CREDITS: 3 (3-0-0) MAX. TIME: 2HRS

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Attempt all the questions in sequence.*

1. Explain in detail the losses associated with optical fibers (Design and operational). How can these losses be reduced or eliminated.

**(5)**

2. What is an FDDI network .Explain the concept of PHY and PMD layers of FDDI network? Draw Frame and Token format.

**(5)**

3. Consider a star network that operates with sources that produce +3 dBm of output power in a fiber. Assume that the fiber loss is 0.6 dB/km and that the station-to-star distance is 2 km. The required receiver sensitivity is -30 dBm. Calculate the number of stations that can be on this network if the connector loss is 1dB, the total insertion loss of the star is 3 dB (from any input to any output) and the link margin is 0 dB. (ii)If the same network is linear assume that 5% of the light is coupled into the arm of the tee coupler and that the insertion loss is 1 dB per tee coupler. Calculate the number of stations that can be on this network if the connector loss is 1 dB per connector and the link margin is 0 dB.

**(4)**

4. Consider three network configurations (i) with 20 stations on the network and a total of 4 km of fiber in the ring. (ii)with 100 stations attached to a ring with 200 km of fiber (the, most fiber allowed in an FDDI ring) and (iii) network which contains the maximum of 500 dual-attachment stations (i.e., the equivalent of 1000 stations) attached to 200 km of fiber. Calculate ring latency , efficiency and access delay time of all three networks

**(6)**

5. Explain SONET rate and format specification, why is SONET called planer network.

**(4+2)**

6. Differentiate between Wavelength-Selective WDM vs Broadband WDM.

**(3)**

7. Explain working of ring WDM and network switches with reference to wavelength selection with block diagrams

**(3+3)**