Roll No. | | | | | | | | | | | | Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(ECE) (2016 Batch) (Sem.–2)

OPTICAL COMMUNICATION SYSTEMS

Subject Code : MTEC-201

M.Code : 74278

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

1. Explain the various power transmission loss mechanisms in the optical fibers. What are reasons of this fibers losses and how they can be reduced, discuss considering various optical transmission windows.

2. Discuss the design of optical transmitter in detail.

3. An analog optical fiber system has a modulation bandwidth of 40 MHz and a modulation index of 0.6. The system utilizes an APD receiver with responsivity 0.7 and is quantum noise limited. An SNR (rms signal power to rms noise power) of 35 dB is obtained when the incident optical power at the receiver is –30dBm. Assuming the detector dark current may be neglected, determine the excess avalanche noise factor at the receiver.

4. What is principle of fiber Raman amplification in optical communication systems and how it is different from erbium doped fiber amplifiers? Compare these two fiber optical amplifiers from application point of view.

5. Explain high capacity point to point WDM lightwave systems.

6. What is the need of dispersion management of single mode fibers in optical communication systems? Explain dispersion management with dispersion compensating fiber.

7. Explain loss managed fiber solution transmission systems in detail.

8. Write a short note on the following :

   a) WDM components

   b) Code division multiplexing.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.