[Nov-16]

[EUREC-703A]
B.Tech. Degree Examination

Electronics & Communication Engineering
VII SEMESTER

ADVANCED COMMUNICATION SYSTEMS
(Effective from the admitted batch 2012–13)

Time: 3 Hours  Max.Marks: 60

Instructions: Each Unit carries 12 marks.
Answer all units choosing one question from each unit.
All parts of the unit must be answered in one place only.
Figures in the right hand margin indicate marks allotted.

UNIT-I

1. a) Explain with the neat diagram the digital signal transmission through on optical data line 8
b) Compare the advantages and disadvantages of guided optical communication lines with that of microwave systems? 4

OR

2. a) Briefly explain about the overall dispersion in single mode fiber 6
b) If a single mode fibre has a step index of 0.03, the core refractive index is 1.45 at the cut off wavelength 1300 nm, then calculate the core radius 6

UNIT-II

3. a) List out the various advantages of using microwave frequencies for various applications 6
b) Briefly describe the four major sections of a microwave terminal station 6

OR

4. a) Define the following terms: Free-space path loss, branching loss and feeder loss 6
b) For a system gain of 120 dB, a minimum input C/N of 30 dB, and an input noise power of – 115 dBm, determine the minimum transmit power (P_t) 6
UNIT-III

5. a) For a PCM system with the following parameters, determine
   i. minimum sample rate,
   ii. minimum number of bits used in the PCM code,
   iii. resolution and
   iv. quantization error
   Maximum analog input frequency = 4 kHz
   Maximum decoded voltage at the receiver = ± 2.55 V
   Minimum dynamic range = 46 dB
   b) Contrast linear and nonlinear PCM codes

OR

6. a) Describe the Bell System T1 carrier system
   b) What are the two types of subscribers to the public telephone
      network? Briefly describe them

UNIT-IV

7. a) Describe frequency reuse. Why is it useful in cellular telephone
     systems?
   b) Determine the number of channels per cluster and the total
      channel capacity for a cellular telephone area comprised of 12
      clusters with seven cells in each cluster and 16 channels in each
      cell

OR

8. a) Explain the difference between a soft and a hard handoff?
   b) Contrast the similarities and differences between two-way
      mobile radio and cellular telephone

UNIT-V

9. a) Briefly describe the AMPS system
   b) List the advantages of a PCS cellular system compared to a
      standard cellular system

OR

10. a) Describe the TDMA scheme used with USDC
   b) Explain the CDMA format used with IS-95