Total No. of Questions : 12]

SEAT No. :

P5076

[Total No. of Pages : 3

[4959]-127
B.E. (Electronics)
(A) ADVANCED COMMUNICATION SYSTEM
(2008 Pattern) (Elective - IV)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate books.***
2) ***Answer three questions from section - I and three question from section II***
3) ***Neat diagrams must be drawn whenever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Describe frequency reuse concept in cellular networks and state formula for N (cells per cluster). **[6]**

b) Discuss How Cell splitting and frequency reuse in mobile communication enhances spectral efficiency. **[6]**

c) Write note on Cell sectorization. **[6]**

OR

Q2) a) State and describe formula for mobile radio propagation between fixed stations. **[6]**

b) How CCIR can be calculated in mobile environment? **[6]**

c) Explain Delay spread and coherence bandwidth. **[6]**

Q3) a) With the help of suitable example describe various interferences occurred in reception of signal. **[8]**

b) Describe the following w.r.t. mobile communication. **[8]**

i) Underlay - overlay

ii) Handoffs & dropped calls.

P.T.O.

OR

Q4) a) Derive free space path loss formula for wireless communication. **[8]**

b) Describe various types of mobile antennas. **[8]**

Q5) a) Describe the various mechanisms to increase the traffic capacity. **[8]**

b) With neat block diagram, describe GSM architecture in detail. **[8]**

OR

Q6) a) Describe Diversity concept to enhance signal to noise ratio. **[8]**

b) With the help of suitable diagram, explain macro cells & microcell to enhance the capacity. **[8]**

SECTION - II

Q7) a) Compare LEO, MEO and GEO Satellites. **[8]**

b) Derive the relationship to find out period of the satellite's orbit. **[8]**

OR

Q8) a) Draw and explain major subsystems on a satellite. **[8]**

b) Define and explain the following terms with respect to the satellite communication. **[8]**

i) Poles

ii) Latitude

Q9) a) A SCPC-FM satellite link has an RF channel bandwidth of 45 kHz and a base band maximum frequency of 4 kHz. De-emphasis provides a subjective improvement in base band S/N ratio of 7 dB. Calculate the base band S/N ratio for the voice channel for a receiver C/N ratio of 14 dB. If the FM demodulator has an FM threshold at 6dB, what is the link margin for this system? **[8]**

b) Explain how TV signal transmitted in satellite broadcasting? **[8]**

OR

Q10)a) Define and explain the following terms with reference to the FM techniques. **[8]**

i) Signal to Noise Ratio

ii) Pre-emphasis & De-emphasis

b) Define & explain the following terms with reference to the digital modulation techniques used on satellite links. **[8]**

i) Non-uniform Quantization

ii) Symbol Error Rate

Q11)a) Explain following terms w.r.t. VSAT (Any Three) **[18]**

i) Signal Format.

ii) MF - TDMA Scheme.

iii) Protocols used in VSAT network.

iv) Atmospheric Losses.

OR

Q12)a) Explain various configuration of antenna used in VSAT system. **[9]**

b) Compare and contrast between FDMA, TDMA and CDMA systems. **[9]**