Total No. of Questions : 12]

SEAT No. :

P1764

[Total No. of Pages :3

[4859]-127
B.E. (Electronics)
Advanced Communication System
(404210) (2008 Pattern)

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

Instructions:

1) *Answer three questions from I and Three questions from section II*
2) *Answer to the two sections should be writeen in separate.*
3) *Neat diagrams must be drawn whenever necessary.*
4) *Black figures to the right indicate full marks.*
5) *Assume suitable data, if necessary.*

SECTION-I

Q1) a) Describe in detail working of Cellular system. **[8]**

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

c) Write note on cell sectorization **[4]**

OR

Q2) a) State and describe formula for mobile radio propagation between fixed stations. **[8]**

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

c) Define Line of sight & Obstructive Path **[4]**

Q3) a) Describe Interference reducing directional antennas and space diversity antenna. **[8]**

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

i) Underlay - overlay

ii) Handoffs & dropped calls

OR

P.T.O.

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

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

Q5) a) With neat block diagram, describe GSM architecture in detail. **[8]**

b) How security is achieved in Mobile network? Explain algorithms related to Security. **[8]**

OR

Q6) a) Describe the architecture of GPRS. **[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) Draw the block diagram and explain Attitude and Orbit Control subsystem of a satellite. **[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 frequencey of 3.4 kHz. De-emphasis provides a subjective improvement in base band S/N ratio of 7dB. Calculate the base band S/N ratio for the voice channel for a receiver C/N ratio of 13dB. If the FM demodulator has an FM threshold at 6dB, what is the link margin for this system? **[8]**

b) Define and explain the following terms with reference to the FM techniques

(iii) Signal to Noise Ratio **[8]**

iv) Pre- emphasis & De- emphasis?

OR

Q10) a) A satellite transponder has a bandwidth of 358.4 MHz .Earth stations use RRC filters with $\alpha = 0.4$. What is the maximum bit rate that can be sent through this transponder with BPSK and QPSK? **[8]**

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

iii) Non -uniform Quantization

iv) Symbol Error Rate

Q11)a) What are the various 'Multiple Access Techniques' used in modern satellite communications? Compare them. **[9]**

b) Define and explain the meaning of VSAT? Explain various VSAT network configurations with the help of a hub. List the applications of VSAT. **[9]**

OR

Q12) a) Explain with a neat diagram the FDMA frame structure. **[9]**

b) Explain the terms with respect to VSAT. **[9]**

i) link budget.

ii) Free space path loss.

iii) Edge of coverage loss.