B.E. (Electronics Engineering) Seventh Semester (C.B.S.)

Elective - I : Mobile Communication

P. Pages : 2 | NRT/KS/19/3532

Time : Three Hours | * 0 2 3 7 * | Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Diagrams and chemical equations should be given whenever necessary.
11. Illustrate your answers whenever necessary with the help of neat sketches.
12. Use of non programmable calculator is permitted.

1. a) Explain channel assignment strategies in cellular system detail. **7**

b) Why is handoff required in mobile communication? Explain handoff strategies. **7**

OR

2. a) Explain the following terms. **8**
i) Cell dragging ii) Holding time
iii) Grade of service iv) Set up time

b) Explain the following capacity improvement technique used in cellular system. **6**
i) Cell splitting ii) Microcell zone concept

3. a) What are the different wide band channel sounding techniques in determining the small scale fading effects? Explain any one of them with block diagram. **6**

b) For Ray Leigh fading signal compute the positive level crossing rate for p = 1, when the maximum Doppler frequency (fm) is 20 Hz. What is the maximum velocity of the mobile to this doppler if the carrier frequency is 900 KHZ? **7**

OR

4. a) Explain the following terms. **8**
i) Level crossing rate. ii) Coherence Bandwidth
iii) Delay spread iv) Average duration of fade

b) Explain how the speed of mobile influences small scaling fading and what is doppler's effect. **5**

5. a) Explain the block diagram of BPSK transmitter and receiver. **6**

b) Explain in detail how QPSK. $\pi/4$ QPSK and offset QPSK are different. **7**

OR

6.	a)	Explain the block diagram of GMSK transmitter and receiver in detail.	**7**
	b)	Explain the constellation diagram of QAM and mention its salient features.	**6**
7.	a)	Write short notes on the following. i) Polarization diversity. ii) Frequency diversity. iii) Time diversity. iv) Space diversity.	**14**

OR

8.	a)	Explain the term equalization and fundamentals of equalization.	**7**
	b)	Explain how the channel coding improves the bit error performance of wireless communication system with a suitable example.	**7**
9.	a)	Compare FDMA and TDMA Qualitatively on the basis of their salient features, merits and demerits.	**6**
	b)	Explain fast frequency Hopping and slow frequency hopping spread spectrum system.	**7**

OR

10.	a)	What is duplexing? Explain FDD and TDD with suitable example for each.	**6**
	b)	Write short note on. i) CDMA ii) SDMA	 **4** **3**
11.	a)	Explain in detail GSM system architecture.	**5**
	b)	What are the different traffic channels and control channels in GSM? Explain in detail?	**8**

OR

12.	a)	Give the structure of GSM slot, Frame, Multiframe, superframe & hyper frame.	**6**
	b)	Explain with neat block diagram various different interface that are used in GSM architecture.	**7**

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