KUMARAGURU
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Register Number: ……..

B.E DEGREE EXAMINATIONS: APRIL/MAY 2016

(Regulation 2009)

Eighth Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

ECE135: Mobile Communication

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The grade of service is measured in
   a) Percentage b) Number
   c) Fractional number d) Logarithmic number
2. The actual radio coverage of the cell is known as
   a) Handoff b) Dwell time
   c) Foot print d) Far field
3. Telephone traffic is measured in
   a) Seconds b) Hours
   c) Erlang d) Minutes
4. Speech coders are categorized on the basis of
   a) Signal compression techniques b) Frequency of signal
   c) Bandwidth of signal d) Power level of the signal
5. The other name for setup channel is
   a) Reverse channel b) Forward channel
   c) Control channel d) Traffic channel
6. In a cellular system when a power level is doubled , the gain is
   a) Increased by 3dB b) Increased by 6dB
   c) decreased by 3dB d) decreased by 6dB
7. A multiple access technique that controls the radiated energy for each user is
   a) TDMA b) FDMA
   c) CDMA d) SDMA

8. Adjacent channel interference can be eliminated by

a) Reducing radiation b) Increasing bandwidth

c) Increasing radiation d) Reducing bandwidth

9. An example of CDMA digital cellular standard is

a) IS-95 b) EDGE

c) AMPS d) GSM

10. Which of the following is an example for 3G.

a) AMPS b) GSM

c) IS-95 d) EDGE

PART B (10 x 2 = 20 Marks)

11. Define a cell

12. Total bandwidth of 400 MHz is allocated to a FDD cellular telephone system, which uses 20KHz full duplex voice and control channels. Compute the number of channels availed per cell if the system uses 4 cell.

13. What is slow fading channel?

14. List the factors influencing small scale fading.

15. Classify the different types of antenna used in cellular system.

16. Outline the different techniques to improve the frequency spectrum.

17. State the non linear effect of FDMA.

18. Draw the spectrum of narrow band CDMA.

19. Distinguish between 1G and 2G cellular networks.

20. Summarize the benefits of Multisim phone.

PART C (5 x 14 = 70 Marks)

21. a) (i) Explain a handoff scenario at cell boundary. (7)

(ii) Derive the expression for signal to noise ratio in terms of coherent reuse ratio Q in a cellular system. (7)

(OR)

b) (i) Discuss any two methods to improve the coverage and capacity in cellular system. (10)

(ii) Explain grade of services in cellular system. (4)

22. a) (i) Explain spread spectrum in detail. (7)

(ii) Explain, how linear predictive coding system extracts speech from time wave form? (7)

(OR)

b) (i) Elaborate the different types of small scale fading models. (7)

(ii) Illustrate the features of GSM speech encoder with necessary block diagram. (7)

23. a) (i) Explain in detail about the different types of set up channels? Explain in detail. (10)

(ii) Draw the schematic diagram of cellular switching equipment. (4)

(OR)

b) (i) Explain channel sharing and borrowing in cellular system. (7)

(ii) Describe the cell splitting techniques in detail. (7)

24. a) (i) Explain the features of TDMA with frame structure. (7)

(ii) Explain in detail about cross talk phenomenon. (7)

(OR)

b) (i) Describe the functions of Near-End –far-End interface. (10)

(ii) Illustrate, how co channel interference is measured at the mobile unit. (4)

25. a) (i) Explain the functional architecture and principle interfaces of GSM. (9)

(ii) Discuss the frame structure of IS-95. (5)

(OR)

b) (i) Describe the concept of iphone. (7)

(ii) Summarize the features of AMPS system. (7)

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