



P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Seventh Semester, B.E. - Electronics and Communication Engineering
Semester End Examination; Jan. / Feb. - 2021
Wireless Communication System

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

- 1 a. Define the following terms: 6
- i) Subscriber Identity Module ii) Foot print iii) Page
- b. With the help of a diagram, explain mobile-to-mobile (cellular) between different service providers call procedures. 8
- c. Describe the paging system with the aid of block. 6
- 2 a. With a neat block diagram, explain a first generation cellular radio network. 8
- b. List the differences between wireless and fixed telephone networks. 6
- c. With block diagram, explain cordless telephone systems. 6

UNIT - II

- 3 a. Derive an equation for signal to interference noise ratio in terms of i_s and N . 8
- b. Explain cell splitting in capacity expansion in cellular system with relevant diagram. 6
- c. Explain Lee's Microcell zone concept with the neat figure. 6
- 4 a. If a total 50 MHz of bandwidth is allocated to a particular FDD cellular telephone system which uses two 20 kHz simplex channels to provide full duplex voice and control channels. Calculate the number of channels available per cell, if a system uses;
- i) Three-cell reuse 8
- ii) Six-cell reuse
- iii) Twelve-cell reuse
- If 1 MHz of the allocated spectrum is dedicated to control channels, determine the equitable distribution of control channels and voice channels in each of the two systems.
- b. Discuss how the frequency reuse concept is used to increase the cellular system capacity? 6
- c. List out the advantages and disadvantages of cellular systems with small cells. 6

UNIT - III

- 5 a. Compare the two channel assignment strategies (FCA and DCA). 6
- b. List the different steps involved in handoff procedure. Also discuss two types of handoff. 8
- c. Describe umbrella cell approach with aid of diagram. 6
- 6 a. Describe the USDC voice speech coder with the help of block diagram. 10
- b. Write the format of AMPS forward and reverse control channels and explain. 10

UNIT - IV

- 7 a. With required block diagram, write the steps required to connect the calling station with the mobile user in (mobile terminated call) GSM system. 10
- b. Describe GPRS reference architecture with the help of block diagram. 10
- 8 a. Explain GSM system architecture with block diagram. 10
- b. List out the advantages and disadvantages of CDMA technology. 6
- c. Briefly explain four possible handover scenarios in GSM. 4

UNIT - V

- 9 a. Explain the circuit switching and packet switching with the help of figures. 10
- b. Describe the CDPD with diagram and write any two advantages of it. 10
- 10 a. Discuss the in-channel signaling and its categories and write the any two advantages of each in-channel signaling categories. 10
- b. Write architecture of the geo-location system and explain. 10

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