Hall Ticket Number:

Code No.: 22503 M

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD

M.E. (ECE: CBCS) II-Semester Make Up Examinations, September-2017

(Communication Engineering & Signal Processing)

Wireless Communications and Networking

Time: 3 hours Max. Marks: 70

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from Part-B*

Part-A (10 × 2 = 20 Marks)

1. Define Coherence Bandwidth and give the mathematical expression for it.
2. Give the mathematical model of Jakes channel.
3. Mention the merits of CDMA over conventional multiple access techniques.
4. What are space time codes and mention some space time codes that are widely used in wireless communication systems.
5. A cellular system uses a frequency reuse factor of ¼. If the path loss exponent is 3 and cell radius is 5Km, find the Signal to Interference ratio.
6. How capacity improvement is achieved using cell splitting?
7. How location tracking is done in wireless communication?
8. How data packet errors are handled in fading channel conditions?
9. List the entities of a Mobile IP.
10. Draw the GPRS system architecture block diagram.

Part-B (5 × 10 = 50 Marks)

11. a) Compare the performance of digital modulation schemes under Rayleigh fading channel conditions. [5]

    b) What are the different manifestations of small scale fading? [5]

12. a) With a neat block diagram explain the working of a RAKE demodulator. [4]

    b) Describe the concepts involved in space time signal propagation such as coding, channel models and capacity. [6]

13. a) Discuss about the factors that influence the handover mechanism. [5]

    b) A cellular communication system having 7 cell cluster layout with omnidirectional antennas has been performing satisfactorily for a required signal to Interference (SIR) of 15 dB. However due to the need for increasing the number of available channels, a 60^0 sectoring of the cells has been introduced. By what percent can the number of channels be increased assuming a path loss gradient of 4? [5]

14. a) Explain the concept of Mobility Management. [5]

    b) Draw the functional block diagram of SS7 signaling network and describe the role of each entity of SS7 signaling network. [5]

15. a) Explain the working of WAP stack. [5]

    b) Draw the protocol stack for GPRS and discuss. [5]

Contd... 2

16. a) Discuss the reasons for flat and frequency selective fading channel conditions. [5]

    b) Write a short note on space time OFDM. [5]

17. Answer any *two* of the following:

    a) Radio interface specifications of GSM. [5]

    b) Link layer protocols. [5]

    c) Routing approaches in Mobile ad-hoc networks. [5]