

Advanced Communication Systems

Time: Three Hours <http://www.rgpvonline.com> Maximum Marks: 70

- Note: i) Attempt any one question from each unit. ii) All questions carry equal marks.
iii) Assume suitable data if any missing.

Unit-I

1. a) What is the concept of frequency hopping multiple access technique in spread spectrum modulation? 7
- b) With the help of block diagram explain reverse CDMA channel. 7

OR

2. a) Explain in brief multiuser detection technique. 7 b) Write a detail note on cellular CDMA systems. 7

Unit-II

3. a) Draw the conceptual block diagram of OFDM systems and explain it in detail. 7
- b) discuss channel estimation in OFDM. Also Determine the peak to average power ratio. 7

OR

4. a) What is adaptive modulation and how does it affects the capacity? 7
- b) What is the importance of single carrier modulation with frequency domain equalization. - 7

Unit-III

5. Discuss the principle and working of smart antennas used in communication systems. How they are different from MIMO systems? 14

OR

6. Write a detailed note on multiple input multiple output systems. What do you understand by multiuser MIMO? 14

Unit-IV

7. Write short notes on the following: 14
 - a) Spectrum management.
 - b) Principle of inter leaving.

OR

8. a) Explain cognitive trans receiver architecture in detail. 7
- b) How is spectrum sensing is achieved in cognitive radio? Also define over delay and under delay. 7

Unit-V

9. a) Explain the mechanism of routing and resource allocation in collaborative networks. 7
- b) What are the fundamentals of relaying in co-operative communication? 7

OR

10. a) Explain the mechanism of routing and resource allocation in multi loop networks. 7
- b) Write a short note on network coding. 7