

(3 Hours)

Marks: 80

NB: (1) Question No.1 is **compulsory**.

(2) Attempt any **three** out of remaining **five** questions

(3) Assume suitable data, if necessary.

- Q.1 (a) Explain with suitable diagram Concept of frequency reuse. (5)
 (b) Discuss GSM Signaling protocol architecture (5)
 (c) What is MIMO-OFDM system (5)
 (d) Compare Raleigh and Rician distributions (5)
- Q.2 (a) Analyze Free space radio propagation model (10)
 (b) Explain Planning of 5G Network and SIM in 5G era. (10)
- Q.3 (a) Analyze various Limitations of 3G and how are they overcome in 4G (10)
 (b) Explain working of Software defined radio. (10)
- Q.4 (a) Explain contention based protocols in MANETs. (10)
 (b) Explain routing protocol in Wireless Sensor Networks. (10)
- Q.5 (a) Discuss types of Spread Spectrum (SS) Modulation techniques. (10)
 (b) Explain white holes in Cognitive radio. (10)
- Q.6 Write in detail on any **four** of the following: (20)
 (a) General Packet Radio Services (GPRS) system architecture.
 (b) GSM Physical and Logical Channels
 (c) Multicast routing in MANET
 (d) Spectral efficiency of multiple access techniques
 (e) Methods for Improving coverage and capacity in Cellular systems
