

**QP Code : 31308**

( 3 Hours)

[ Total Marks : 80

- N.B. :** (1) Question no.1 is compulsory.  
(2) Write any **three** questions from remaining **five** questions.  
(3) Assume suitable data where ever necessary.

1. (a) What is the role of GPRS in enhancing 2G GSM systems. **20**  
(b) Explain factors affecting small scale fading.  
(c) Elaborate the concept of IMT 2000 family.  
(d) Differentiate between WCDMA & CDMA 2000.
2. (a) Describe the difference between service data units & protocol data units. **10**  
How is mapping from one to other is done.  
(b) Explain IS-95 forward & reverse channel structure in detail. **10**
3. (a) Explain GSM architecture & elaborate function of each block. **10**  
(b) Draw the block diagram of LTE transmitter & Receiver. Explain them in detail. **10**
4. (a) Consider geographical area of a cellular system is 480sqkm. A total of **10**  
910 radio channels are available for traffic handling suppose, area of a cell  
is 8sq km.  
(1) How many times would the cluster size of 7 have to be replicated in  
order to cover the entire service area? Calculate the number of channels  
per cell and system capacity.  
(2) If the cluster size is decreased from 7 to 4 then does it result into  
increase in system capacity.  
(b) Explain power control mechanism in 3G. **10**
5. (a) Compare & contrast FDMA, TDMA, SDMA, OFDM, SSMA. **10**  
(b) Explain concept of MIMO w.r.t. 4G technology. **10**
6. Write notes on (**any two**) **20**  
(a) EDGE architecture  
(b) Call procedures in GSM  
(c) Software defined radio.