(3 Hours) [Marks : 80]

N. B.: (1) Question No.1 is compulsory.
  (2) Out of the remaining questions attempt any **three.**
  (3) Figures in the bracket indicate maximum marks.

1. Answer any 4 the following: 20
  (a) If 20MHz of total spectrum is allocated for a duplex wireless cellular system and each simplex channel has 25kHz RF bandwidth, find the number of duplex channels and the total number of channels per cell if i) N=4 cell reuse is used, ii) N=12 cell reuse is used.
  (b) Explain authentication and security in GSM.
  (c) Compare the WCDMA and IS-95 technologies.
  (d) Explain the need for 3G cellular networks.
  (e) Differentiate between soft hand off and hard han doff.

2. (a) Explain the coverage and capacity improvement techniques for cellular systems. 10
  (b) Explain different traffic channels and control channels in GSM. 10

3. (a) Explain GSM frame and time slot structure. 10
  (b) Explain GSM architecture in detail. 10

4. (a) Explain mobility and radio resource management in CDMA. 10
  (b) Explain variable data transmission and power control in CDMA. 10

5. (a) Discuss the services provided by CDMA 2000 cellular technology. 10
  (b) Explain GRPS network architecture. 10

6. (a) Explain 4G LTE architecture giving a neat block diagram. 10
  (b) Explain the Ad-hoc routing protocols for MANET. 10

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